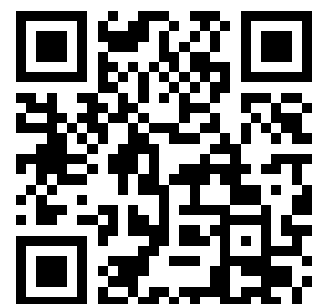


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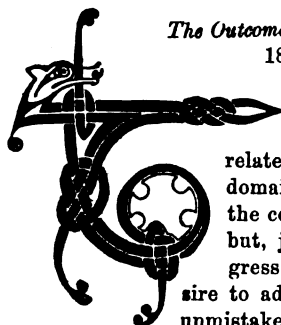
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# THE IRISH BUILDER.

ARCHITECTURAL, ARCHAEOLOGICAL, ENGINEERING,

Sanitary, Arts and Handicrafts.

*The Outcome and the Outlook—  
1874-1875.*



THE outcome of the past year, as far as relates to this country, in the domain of architecture and the cognate arts, is not large; but, judged as a whole, progress is evident, and the desire to advance in many ways is unmistakeable. From month to month throughout the past year we furnished our readers with information on most of the public matters bearing upon the profession in this island that called for particular notice, and illustrated several works bearing upon archæology and architectural design.

The city during the past year cannot boast of any great accession to her public buildings; those calling for note have been alluded to by the President of the Architectural Association in his address, published in our issue of the 1st of last month. The completion of Essex Bridge is, on the score of public utility, certainly an improvement; but artistic effect has been sacrificed to convenience. Since its completion, however, a subsequent improvement has taken place; but there are likely to be divided opinions as to its value.

Throughout the provinces, and particularly in the northern one, church building and "restorations" or alterations have been rife, and, as we noticed last year, many Roman Catholic edifices are in course of erection which are not likely to be completed for some years, while additional ones are being commenced in almost every county. Belfast is in advance of this city in some particulars, and, in addition to her other enterprises, building improvements must be added.

During the past year the interests of the architectural profession in Ireland were partly attended to by the Royal Institute and the Architectural Association; but the older professional, unfortunately, has lacked the strength and vitality that is needed to give tone and influence to its proceedings. It is needless here to speculate upon its future, or point out the weakness of the past. There is room for a vigorous and effective organisation in the interests of the profession, and if the Architectural Association, which has begun its career well, continues by shewing an increased activity, we have little doubt but it will become the representative of its order.

The amalgamation of the two societies is worthy of consideration, for, as matters stand at present, we cannot honestly say that the Institute is existing for any useful purpose, through its inherent weakness. It is, however, an embodiment still, and, even in its

present shattered state, it could be made the nucleus of a useful Institute, if the leading architects of the country would rally round it. As far as the Architectural Association is concerned, we must certainly say they are deserving of words of commendation, and several of the papers read at their meetings were fully equal in literary merit to some of those delivered at the British Institute.

Our learned bodies in the city and the provinces have, during the late year, been active, and signalled their meetings by many papers of singular merit, and discussions that evidenced no shallow knowledge of the subjects touched upon by the respective speakers. There has been no falling off in the literary and intellectual standard that has characterised the proceedings of the Royal Irish Academy. Though it has of late years lost by death the aid of several members, and by the transference of the services of some living members to kindred societies across the channel, yet the Academy maintains its olden prestige.

The Royal Historical and Archæological Association of Ireland still continues its stated meetings, and in the field of archæological research, and in conservation of national monuments, has done and is doing good work. 'Tis a pity the labours of this body are not better assisted by funds. The Rev. James Graves has been indefatigable in his endeavours, as might be seen by our reports of the proceedings of the association; and, *en passant*, we must advert to the wise and judicious remark of Dr. Stokes, the President of the Royal Irish Academy, on the subject of our National Monuments, published in our last issue. The provisions of the Irish Church Act have placed in the hands of the Church Commissioners the guardianship of all ecclesiastical structures which have fallen into disuse and that may be considered worthy of preservation. The care of these buildings by the same Act is vested in the Board of Works. Among all the works deserving of preservation, the Rock of Cashel is, however, the only one where "restoration" has been commenced, and the works of reparation at the historic Rock were reported to be of such a nature as to call for sharp criticism on the part of members of our learned bodies and the Press of this country. We hope, as the year advances, to hear better news.

The Royal Hibernian Academy continued last year its annual art exhibition, and some meritorious works in architectural design as well as in the usual fields were exhibited. We hope the time is not distant when the Royal Hibernian Academy will become what its founder desired, and what many members of the Academy still desire. In the field of Painting, the Academy, during its existence,

can point to successes; but in the matter of Sculpture and Architecture the honours for many years are indeed small. As we said last year we say to-day: there is need of re-organisation in connection with the departments of the Academy.

The Royal Dublin Society continues almost unbroken its systematic course, and its annual shows in connection with husbandry and the useful arts are well attended, and lead to not a little emulation and improvement throughout the country. The Schools of Art in connection are also maintaining their reputation, and advancing yearly in the standard of art instruction under good management. We have spoken only quite recently of the merits of the Dublin School of Art, and of those of Cork and Belfast, some of the pupils of which lately distinguished themselves in more fields than one.

The claims of the Assistant County Surveyors were discussed during the late year, and formed the subject-matter of a deputation to the Chief Secretary. There is some hope of improvement in their position, which indeed calls for immediate consideration. That such a useful, hard-working, and educated class of public servants should so long have been treated in the manner they are, in respect to remuneration, is indeed shameful.

The labour market in this country was but slightly disturbed during the late year, and that was confined to a few districts, and particularly relating to the staple industry of Belfast. There have been no building disputes of any moment during the past year in this island, and the great agricultural strike of the sister kingdom had scarcely any appreciable effect on this country. We have never been advocates for setting class against class, though, at the same time, we are clearly of opinion that the wages of the agricultural labourers in this country are far too small, and need to be increased, if they are to be made honest and useful husbandmen who will be a credit to their order and their employers. The homes of the agricultural class need first to be improved, and the benefits of education brought more within their reach. Too many in this country are, unfortunately, let grow up in ignorance, and ignorance is the parent of crime. Bearing upon the same question is that of industrial dwellings for the artisan classes of cities and towns. In London, and elsewhere in England, much has been done of late in this direction, but little or nothing in this country. Some of our so-called improved dwellings ought to be improved off the face of the land. The late Duke of Leinster showed an example to his brother landed proprietors in the matter of farms and farmers' labourers' dwellings which deserve to be followed, and we are glad to see has been followed, though in very few instances.

The dearness of coal in the first months of last year had a most injurious effect on several branches of trade and manufacture, and it particularly affected the iron trade and lessened its productions. Iron, of late years, has been largely used in building construction, and is likely to be still more extensively used in connection with several branches of building and engineering work. It is, therefore, a matter of serious concern that the cost of fuel should not run abnormally high. The miners' strikes in the sister kingdom, for a while considerably lessened the out-put of coal, and gave a chance to foreign iron-masters, which they availed themselves of, in the English market.

The paramount question of last year, and which is likely to be one of the most prominent this year, is that of the public health. The Irish Act, though far from being perfect, was a step in the right direction, and is likely to lead to considerable reform if its provisions are judiciously enforced. As was to be anticipated, it has provoked considerable opposition on the part of public bodies, as it has led to the increase of the rates. It is a measure, however, fraught with such future good for the country that the burdens it inflicts in the shape of additional taxation are entirely overbalanced in view of what it will effect for the social well-being of the masses.

The medical profession of this country have reason to feel satisfied, despite the present opposition to the increase of their salaries as medical and sanitary officers. The Irish Health Act will certainly work them much future benefit if they know how to appreciate their position; but their duties in regard to the public health and sanitary administration will need to be better defined. The working of the Act, and indeed all our sanitary machinery is, at present, only tentative, and it requires time to see what further improvements may be rendered necessary. But, even now, we are fully aware of some of the defects of the Public Health Act, and the sooner they are amended the better will be our sanitary organisation. The year will be pretty far advanced, we fear, before our new sanitary boards settle down to their duties.

The purification of the Liffey and the Main Drainage scheme have, in one form or another, occupied nearly the whole of the public mind of this city throughout the past year. On the simple purification question we have had no end of speeches, letters, and reports. Judges threatened to adjourn their courts if the river was not cleansed; the Viceroy threatened, the public threatened, but all to no use—the river remained untouched. After upwards of fifty plans from fifty professional architects or engineers were reported upon by a commission of three engineers, and the substitution of one of their own by the joint engineers, and the ignoring of the joint plan by the Borough Engineer in favour of the original scheme, the Liffey question was still unsettled, and remains unsettled. The Corporation are ready to avail themselves of the promise of the Government to advance a loan on the security of the rates; but still the work of main drainage cannot be commenced by the Corporation without further parliamentary powers. It remains to be seen whether the Civic body or a new main drainage board apart, formed by parliamentary sanction, will perform the required and most urgent

work. Years have been frittered away by our Corporation over the matter, and during the time the sanitary state of the city has advanced from bad to worse.

We must admit that during the late year several prosecutions have taken place in the matter of milk adulteration and infringements against the sanitary Acts; but the Public Health Committee of the Corporation could have performed much more useful work in the interest of the public health. The Dublin Sanitary Association—a volunteer body—during the year continued to do some useful service, by pointing out nuisances and leading to their removal. The city, however, continues greatly neglected, and is not half scavenged. There are many vile rookeries, too, in different quarters of the town that require pulling down. Our public squares, which we often adverted to heretofore, should be opened to the free entry of all our citizens; and public swimming-baths are a necessity.

In the outlying townships of Kingstown, Blackrock, Dalkey, Bray, Pembroke, Rathmines, Clontarf, and others, considerable interest throughout the late year has been manifested in the respective boards on the head of sanitary matters; and in two or three of the above-named townships public improvements are visible, and others are about to be commenced. Blackrock is moving in the matter of a public park for some time, and others of the townships are likely to follow. The proposed People's Park north of this city is still in a region of eclipse, the Corporation shewing but little desire to move further in the matter at present.

The reclamation of our waste lands and foreshores has attracted considerable attention during last year, and we have devoted in these pages no small space to its advocacy. We are sanguine that before long there will be a practical step taken to turn these waste but valuable acres to profitable account. The drainage of Lough Erne and the Shannon are matters of importance to the landed interest and to other interests in view of the food question, and as such we trust that the works will be rapidly proceeded with, and the difficulties now intervening speedily adjusted.

The literature of architecture is evidently looking up in this country, and there is reason to rejoice a little in this direction, although there is not much room for congratulation on other topics connected with the profession. Mr. Arthur Hill, of Cork, has recently contributed a monograph of Cormac's Chapel and the Rock of Cashel. Mr. J. J. Phillips, of Belfast, has contributed a monograph of Grey Abbey, County Down, with a series of well-executed drawings, and Mr. Richard Rolt Brash has just published his "Ecclesiastical Architecture of Ireland," a work shewing great care, research, and insight into the history and style of our early ecclesiastical buildings. Not long since Mr. Thomas Drew furnished an able report on the ancient Church of St. Nicholas, Carrickfergus. Other architects in this country have also, of late, been adding to the literature of their profession.

There have been some deaths of note connected with the architectural and engineering professions during the late year in this country, and some good patrons of the arts have also passed away. Among the more prominent of those are the names of Sir John Benson, architect and engineer; John Fraser, C.E.; and, as a native of this city,

though not a resident for many years, John Henry Foley, our distinguished sculptor. The name of the late Duke of Leinster is entitled to honourable mention, for throughout the course of a long life, he was one of the foremost patrons of the industrial and other arts. In other fields not immediately connected with the profession in this country, we have lost also a few men of note.

In the sister kingdom some distinguished architects have passed away, and among them one who was universally known for his great services to the profession in an ornamental way—Mr. Owen Jones. As an author and architect he deserves to be remembered.

Looking forward in the future there are many pressing questions calling for settlement at the hands of the legislature, and also at the hands of architects and engineers. The pollution of rivers, and the storage of water for the wants of the present and future, are important questions; and steps must soon be taken in these matters, if the public health is to be preserved. There are, to be sure, difficulties in the way; but the refuse of our manufactures and the sewage of our cities and towns must not be allowed to foul our rivers, or destroy the sources of our water supply. The question is a great engineering one, but there is science and intellect sufficient in the empire to grapple with all the obstacles, and overcome them.

In regard to the relations between architects and engineers generally, there is need of a more cordial co-operation and kindly feeling, for each are essential to each. Of late, architects have been hit hard by amateur critics, and some blows, too, have been given them by the disappointed ones of their own profession. It will scarcely work the profession any permanent harm, and is certain not to win a lasting fame for the critics themselves. There is something, however, to be learned from an enemy, and the assaults will, after all, lead to good by binding the respectable members of the profession in closer bonds for their own protection. The profession we do not mean to say is faultless in every respect, nor are our institutes in either country all that could be desired. Besides advocating more friendly relations between architects and engineers, we desire to see a more harmonious co-operation between the members of the profession and builders and workmen. Sympathy with the skilled artisan is as essential as sympathy with the artist, if we are to have good building and conscientious work in future.

Our city stands much in need of improvement in the conduct of our public boards, as well as in a sanitary direction. Improvements have been often projected, but are not carried out for years, through supineness and oftentimes criminal neglect. New streets, as well as better sewerage, are required for the health of the city, and the removal of many obstructions to passenger and vehicular traffic. One of our crying wants is the need of a Building Act, so that buildings shall not be erected in future in open violation to the rules of public and personal health. Among the other projects long delayed in this city, is that of public statues and monuments. The O'Connell statue, which might have been completed long since, has now, through the death of the artist, been further delayed, and it is doubtful if it can be completed in time for the



proposed centenary of this year. The Grattan statue has also been delayed; and if we were to have a Balfe monument instead of a scholarship, it is probable a similar delay would occur, particularly if it rested with, or was in any way connected with, Corporate management.

We have strong hopes that in the year now commenced, a decided progress will be evidenced in different directions, and more particularly in that relating to the public health. A duty devolves on the legislature as well as on our public bodies, and the people are also legally empowered to insist on the execution of certain work essential to their well-being as citizens, and for the performance of which they are taxed. Throughout the year we will have occasion, in these pages, to draw attention to matters which we have touched upon, and to other questions that need ventilation.

For the present we will content ourselves with what we have written; and, strong in the will and purpose to honestly and independently fulfil our duties, we enter upon the Seventeenth Year of the existence of the IRISH BUILDER.

#### "THE ECCLESIASTICAL ARCHITECTURE OF IRELAND."

We had intended to write at some length in this issue on the merits of Mr. R. R. Brash's new volume on "The Ecclesiastical Architecture of Ireland, to the close of the Twelfth Century." We must content ourselves for the present in saying that the work is one of high merit, and evidences the author's thorough acquaintance with the subject. Both from an archaeological and architectural point of view, the volume is one of high value, and Mr. Brash, throughout his work of nearly two hundred pages, takes nothing for granted without the clearest or best proofs that can be adduced. References are honestly acknowledged, but apart from this, the author has exhibited his own capacity of original treatment in language never involved, but always clear and enticing to the reader. The work is divided into twelve chapters and illustrated with 55 plates, and a good index is supplied at the end. The following are the subjects of the chapters:—Pre-Historic Period, Early Christian Period, Oratories of the Second Class, Primitive Churches, the First Transition Period, Early Irish Art, the Romanesque Period, the Cistercian Order and their Churches, Ancient Fonts, Irish Masonry, Early Christian Masonry, the Gobhan Saor, and Traditionary Legends of the Gobhan Saor. Some of the chapters are intensely interesting, and will be found to be so by the general reader apart from the architectural profession. We venture to say that Mr. Brash's work is the best on the subject that has ever appeared. We shall have something further to say hereafter.

#### COMPETITION DESIGNS FOR INDUSTRIAL DWELLINGS.

RECENTLY the Improved Industrial Dwellings Company, London, (of which Alderman Sir Sydney H. Waterlow, M.P., is chairman), received twenty designs for the erection of dwellings for the working classes on a large estate in Goswell-road, leased to the company by the Marquis of Northampton. The directors of the company met on Monday, 28th ult., and awarded the first premium of

£250 to Mr. Henry Macaulay, of Elm-bank, Kingston, for his design marked "Salutaris," and the second premium to Mr. Banister, 32 Poultry, for his design marked "Self-contained." Four other designs received commendation. The directors were assisted in their investigations by Messrs. Charles Barry and George Godwin, architects, who with Mr. A. Waterhouse, kindly placed their services at the disposal of the company. On the report of the two first-named, the prizes mentioned were awarded. In soliciting these designs the directors made "economy of construction combined with strength and durability" a primary condition of the competition; and they are of opinion that the cost of construction, if any of the designs sent in were carried out, would much exceed the general cost to which the directors have hitherto felt themselves restricted, regard being had to the means of the working classes.

#### A NEW METHOD OF SIGNALLING ON RAILWAYS.

We are in receipt of a small volume on the above subject, printed by A. K. Baldwin, Southborough. The method described was invented and patented by Sir David Salomons, Bart., and the volume descriptive is written by the worthy baronet. The author explains his new method at some length with considerable enthusiasm, and he apparently cannot see the least difficulty in its adoption, although we have some grave doubts about its practicability. It would take too much space before we could make our readers clearly understand the *modus operandi* of this new invention, and it is safer and better on our part to recommend to those who wish to understand or master the details, to procure the little volume. We may add, however, that the author deals with the subject of rails and signals, accessories, the automatic system for stopping trains, crossings, sidings, and facing points, other methods of producing electricity, inter-communication, and last, though not least, accidents, and the starting of trains at stations. The author in the third portion of his subject sums up the disadvantages of the present system of signalling, and certainly proves several of its defects. The author and inventor is very sanguine, for he concludes the main portion of his subject with the following words:—"Having finished my task as far as working out the system goes, and putting it in black and white, it but rests with the railways and the public to give it a fair trial, which, no doubt, will meet with success, and then travellers may go on their journeys with lighter hearts, directors may have agreeable dreams, and shareholders find their pockets heavier with gold. Indeed, we shall travel to the 'North' with as much complacency as if we were about to eat our dinner." If Sir David Salomons' invention can produce the above benefits, it would, indeed, be a heaven upon earth for railway travellers; but we fear that many thousands of lives will yet be sacrificed before the glowing picture described by our author will be realised.

#### PHOSPHATE SEWAGE.

A COMPANY has been for some time established under the title of the Phosphate Sewage Company; and on the 10th instant the chairman and a number of the directors and officials proceeded to Hertford, for the purpose of explaining their process to a number of gentlemen interested who came from different parts of the country. We have already, during the late years, described a series of processes connected with sewage utilization, and we are prepared, from time to time, to discuss the relative merits of each system, and judge it by its results.

The *Herts Guardian*, in describing the phosphate sewage work at Hertford, says:—"The process begins in a machinery shed at the eastern end of the six tanks used heretofore in the lime process by the Hertford cor-

poration. In the upper storey of this shed, sulphuric acid is first mixed with the phosphate of alumina and made into a kind of paste; thence it is conveyed into another tank where it is diluted until it will run as a liquid, and thence into a huge vessel in shape like a chemist's mortar, where it is thoroughly stirred, and then it is sent down and along pipes to the west end of the tanks; and here it passes into and amongst the town sewage which falls into a tank recently made by the company, with curious contrivances for ensuring the thorough mixing of the sewage with the phosphates. Thence it passes into a well, where it receives the lime, which is sent from the lower storey of the machinery shed. From the lime well the sewage passes into the tanks, or settling beds. At the lower end of each tank is a filtering bed, one of them being on a different system to the others. After undergoing the process of filtration, the effluent passes off into a back cutting, and by the Manifold ditch into the Lee. The solid portions of the sewage are lifted up by machinery and carried along troughs to a large tank east of the machinery shed, where it is spread out on the drying beds and becomes a manure, having a market value, and possessing highly fertilising qualities rendering it specially adapted for the cultivation of root, grass and corn crops."

Some of the visitors to the works spoke strongly in favour of the process. We may add that a paper on the Phosphate Sewage method was read on the 10th ult., at the Society of Arts. It was our intention to have made use of this paper to some extent, but the copy was mislaid.

#### THE ARCHITECTURAL ASSOCIATION OF IRELAND.

AN ordinary general meeting of this body was held last evening at 212 Great Brunswick-street,

Mr. W. M. MITCHELL, President, in the chair.

Amongst those present we observed:—T. Drew, R.H.A.; J. J. O'Callaghan, D. Freeman, H. C. Brett, John H. Brett, John L. Robinson, T. H. Longfield, H. Wilmot, C. G. Doran, &c.

Mr. J. H. Brett, C.E., read a paper on "County Jails and Court Houses." On its conclusion a discussion ensued, in which Messrs. Drew, Longfield, O'Callaghan, and Doran took part.

A vote of thanks to Mr. Brett for his very valuable paper was proposed by Mr. C. G. Doran, and seconded by Mr. O'Callaghan, and passed unanimously.

#### THE PEOPLE'S PARK, BLACKROCK.

At the meeting of the commissioners on Wednesday, the chairman introduced the subject of the People's Park, for the completion of which he said he felt extremely anxious, and said it was desirable that in conformity with the recommendation contained in a report of Mr. Barry, C.E., on the subject, Mr. Barnes, township surveyor, should draw up plans and specifications for the guidance of the contractor in finishing the works. Mr. Smith considered that Mr. Barnes should follow out to the letter the instructions contained in Mr. Barry's report. Mr. Barnes undertook to have specifications and quantities prepared in about a month. At the same meeting a letter was read from Mr. M'Curdy, C.E., expressing his regret that unavoidable circumstances prevented him from reconsidering the resignation of his seat at the board. On the motion of Mr. Robinson a resolution was passed to the effect that the board accepted Mr. M'Curdy's resignation with great regret. The chairman remarked that Mr. M'Curdy had really left them because he saw that from the way in which their business was transacted it could not be got through in a reasonable time.

### THE HISTORY OF PAINTING, TO THE END OF THE EIGHTEENTH CENTURY.

MR. Thomas M. Lindsay, head master of the School of Art, Belfast, recently delivered a lecture on the above subject to the members of the Belfast Architectural Association and a large number of visitors. J. A. Henderson, Esq., J.P. (Mayor), filled the chair. The lecture, which occupied two hours in its delivery, elicited frequent plaudits from the enlightened audience. We print an abstract of the paper:—

He thought it clearly desirable that the young architect should be familiar not only with the history of his own art, but also with that of sculpture and painting, and with the typical character at least of the great schools whose productions were originally regarded as closely allied with, as they were constantly applied to, the enrichment of the architectural design. Beginning with the origin of pictorial representation, Mr. Lindsay sketched the various phases which painting went through up to the end of the eighteenth century, alluding at some length to the great masters of the art, their chief works and peculiar style. In concluding he said,—In speaking of the great epochs of pictorial art, and of the men who imitated or sustained their greatness, and again in forming a disparaging estimate of the productions of other periods and of other artists whose unsatisfactory works force us to place this estimate so low, it must be understood that our judgment cannot apply to broad, well-marked characteristics. Even in periods when the ambitious works that decorated or disfigured churches, and that now stand as types of what is feeble, pretentious, or tamely conventional in our galleries—even at such epochs there have often been choice examples of good taste and fine workmanship in the more obscure walks of artistic life. When it has happened that the demand for pictorial works was vigorous it has happened, too, that this demand could be satisfied by a sort of manufacture of copies of known pictures: this especially applied to altar-pieces and church decorations; but, then, this was the golden opportunity for the man of genius; his services were certain to be in request, and with the opportunity he often found the means to shake himself free from conventional restraint, and leave works for the ages to admire. Occasionally the man stamps the epoch. Far more often the events and current thought of the time mould, or, at least, direct, the aspirations of genius, and then it is “the hour and the man.” In my discursive view of the history of painting the use of various terms, as high art, elevation of sentiment, mere imitation, vulgarity, and degradation have been unavoidable. Equally so it is that each of you will apply these expressions according to your own modes of thought, education, and familiarity with the general subject. Hence such general distinctions must be accepted as indices rather than as dogmas or oracles. When, either for gratification or edification, we contemplate a picture, always supposing it to be from the easel of one who has qualified himself by years of devoted study, and who has had some image clear “in the mind’s eye” which he has sought to deposit on his canvas, let us examine it with fairness, discrimination, and in sympathy with the artist, who, belike, has really put his heart into it. An hour thus spent before three or four good pictures will be more fruitful in true pleasure than weeks occupied, if it deserve the name, in dawdling through galleries by the mile, indolently pronouncing one picture “divine,” and another atrocious, parroting the criticisms of a guide-book, or more likely prompted by freshness and novelty to be eulogistic, and by fatigue or a gnawing appetite to condemn Michelangelo as not being able to draw a bit, and Titians as having a poor notion of colour. In the sciences—even in that Protean thing called politics—we seek to find a clear reason for

our opinions and convictions; but in art every man is his own oracle, and usually if you differ from him in this, he scoffs at your ignorance, or marvels at the limited perception with which you are unfortunately endowed. Now, assuredly there must be, there are, elements of truth in consonance with those of beauty in every fine picture, as in every real art work—in painting, sculpture, or poetry, and I conjure those still in their student career—I ask those who know it better than myself, to corroborate me in the appeal to seek those attributes of all true art, nor rest till they discover them, and I firmly believe that an art band so animated would be the harbingers of a new Renaissance.

### THE QUEEN'S INSTITUTE EXHIBITION.

THE fourth annual exhibition of works of art and art-industry was opened at the Institute, Molesworth-street, on the 16th ult. The exhibition comprises drawings from models, landscapes, flower painting from nature in oils and water-colours, copies of paintings, numerous designs for manufactures, painted fans, and a good collection of porcelain. As a whole, the exhibition is most commendable, and it evidences an efficient staff in the conduct of the Institute, as well as proving the industry and energy of its painstaking secretary (Miss Corlett). It is a pleasure to find in this city such an Institution established, where for long years existed a want. To afford opportunities to educate women to obtain suitable employment, by the cultivation of various branches of study, is an object that deserves every support; and already the Institute has turned out students whose talents have been availed of in making designs for damask and other fabrics in this country. We are sanguine that the young lady students will look back with pleasure on the days they spent at the Institute, and feel an interest in its success by encouraging their sisterhood to avail themselves of its benefits.

The field of women's labour, unfortunately, is too limited, and particularly that of the middle classes; and heretofore a difficulty in providing for the education of young ladies of the respectable classes with a view to their remunerative employment. Accomplished governesses and music teachers are legion, and badly paid; but the fine arts and the field of industrial design at present affords a hopeful opening, and in such a direction the Queen's Institute can really accomplish noble and profitable work.

On the opening day the Lord Lieutenant and the Duchess of Abercorn attended, and there was also present a most numerous and influential gathering of distinguished persons. The task of the adjudication of the prizes devolved upon the following gentlemen—Messrs. T. A. Jones, President of the Royal Hibernian Academy; B. Colles Watkins, R.H.A.; Augustus Burke, R.H.A.; and Mr. Woodhouse, R.H.A.

The following prizes were awarded:—

Practical Geometry—Sarah Black, special prize; Obre Chambre, class prize.

Linear Perspective—Agnes M. Frazer, prize; Emma O'Neil, commended.

Freehand Outline from the Flat—Isabella Cumming, Fanny Holden, bronze medals.

Outline, Madeline Pilaster—Anna H. Sealy, bronze medal.

Shading from the Flat—Grace Hanna.

Shading from Objects—Sarah Black, silver medal; Matilda Irwin, bronze medal; Alice Heinekey, commended.

Shading from the Cast—Josephine Webb, silver medal; Sarah Black, commended.

Anatomical Studies—Anna H. Sealy, silver medal. Follage from Nature—Sarah Black, silver medal; Obre Chambre, bronze medal.

Painting in Oil or Water Colours—Grace Hanna, Annie Gribbon, bronze medals; Rebecca Sproule, commended.

Painting in Oil or Water Colour from Nature (Landscape)—Josephine Webb, silver medal.

Fruit—Rebecca Sproule, bronze medal; Harriet Felton, bronze medal.

Applied Design—Eliza Jennings, bronze medal; special prize, Mary Kealy.

Industrial Arts—Three in competition for each prize.

Porcelain Painting—Miss Felton and Miss Banim. Painting from Nature in Water Colours (best group of flowers from nature)—Miss Felton, Miss O'Connor.

Best Illumination—Prize, Miss Edith Vance. The best Fan, the subject consisting of flowers—First prize, Miss O'Connor; second, Miss Hughes.

### THE NEW BREAKWATER AT ABERDEEN.

THE INSTITUTION OF CIVIL ENGINEERS, LONDON.

At the sixth ordinary meeting of the session 1874-75, held on the 15th ult., Mr. Thomas E. Harrison, President, in the chair, the first paper read was on “The New South Breakwater at Aberdeen,” by Mr. William Dyce Cay, M. Inst. C.E.

The New South Breakwater formed part of the scheme of improvements now being carried out by the Aberdeen Harbour Commissioners under the Act of 1868, and was completed in the autumn of 1873. After describing the object of the breakwater, and the design upon which it was originally commenced, the author observed that, in carrying out the work, various methods of building with concrete in a liquid condition deposited *in situ* were tried. The results proving satisfactory, the original design was to some extent departed from, and the portion of the work in deep water was executed in the following manner:—The foundation, after the loose material had been removed, was laid with large bags containing liquid concrete; the work was then carried up with concrete blocks, of from 10 tons to 24 tons each, to 1 foot above low water of ordinary neap tides, from which level to the roadway—a height of 18 ft.—it consisted entirely of liquid concrete deposited *in situ*. The toe of the breakwater was protected by an apron of bags, each containing about 100 tons of liquid concrete. Near the shore the foundation rested on rock, then, for a space of 100 ft., on boulders and gravel, and the outer portion was clay mixed with gravel and covered with large stones. The bags containing the liquid concrete were deposited in the foundations from iron skips, the bottom of which opened on hinges by the action of a trigger, and so discharged the bags. Three skips were used, two holding 5½ tons of concrete each, and one 16 tons. The method of working was as follows:—A bag of the same shape as the skip, but rather larger, was fitted as a lining to the skip and temporarily lashed at the top; the bag was then filled with liquid concrete, the temporary lashings were removed, the mouth sewn up, and the skip with its contents lowered by a crane to the divers. The skip was then moved in obedience to signals until suspended close above the required position, when the trigger was pulled from above by a rope, which released the bottom of the skip, and the bag was deposited. The divers subsequently prepared the surface of the deposited bag to receive the superincumbent blocks. The proportions of the concrete most suitable for this work were 1 of cement to 2½ of sand and 3½ of gravel. The sea staging consisted of a solid timber framework supported on Oregon pine masts, which rested on cast-iron shoes, each weighing 11½ cwt., and having a socket on the upper side to receive the foot of a mast. The sole of each shoe was a flat octagonal plate 8 ft. 8 in. across. The top of each mast had a cast-iron cap, with a socket 4 ft. deep, the upper side being a flat,

triangular table, measuring 6 ft. 10½ in. by 6 ft. 2 in., to which the timber superstructure was fitted. The weight of each cap was 32 cwt. The superstructure of timber girders was composed of large logs keyed and bolted together, no trusses being used, and the whole was braced with ties and struts, and, for additional security, tied to anchors. It was stated that a length of 108 lineal feet of the staging had been erected in four weeks. As the staging was only 27 ft. wide, while the breakwater was 35 ft. wide at the top, the masts were built in as the work progressed, and only as much staging was used in the sea in advance of the work as was necessary for carrying on the building operations. No damage had been done to the staging, either by the sea or by ships, during the progress of the work. Only a length of 360 ft. of the superstructure was required, for, as the building was advanced, the staging in the rear was taken down and re-erected in front. There were two 25-ton steam Goliath cranes with overhanging ends for the building work, and one 8-ton steam derrick for erecting the staging. The cranes were taken ashore in winter and in bad weather by a carriage running on rails on the breakwater.

The system of building with liquid concrete deposited *in situ* above low-water level was then described. A framework of posts was erected round the space intended to be filled, excepting at the end of the completed work, which formed one side of the case. These posts had grooves in their sides, with sliding panels, extending from post to post. The bottom and sides of the case were lined with jute-bagging, and tie rods, extending through the posts and from side to side, prevented the case from being burst open by the lateral pressure of the liquid concrete. In executing the concrete building *in situ* above low-water level, it was considered important to exclude the tide from the unset concrete. To effect this the cases were arranged of such a size that, by commencing when the tide left the foundation of the piece, the concrete could be filled into the case faster than the tide rose, so that its surface was always above the level of the sea outside the case. To hasten the work, concrete blocks were sometimes incorporated with the liquid concrete. The contents of the cases in 1872 and in 1873 varied in weight from 335 tons to 1,300 tons. The proportions of the concrete found best for this work, keeping in view the risks from storms, had been 1 of cement to 3 of sand and 4 of gravel. Bags of concrete, containing 100 tons each, were deposited in the apron after the other parts of the building had been erected, by fixing a large timber box on brackets overhanging the site where the bag was to be discharged. The inside dimensions of the box were 32 ft. 1 in. by 8 ft. 1 in. by 6 ft. deep; and the 100-ton concrete bag was filled in the same manner as the bags in the small skips. When full, the bottom of the box, which opened on hinges placed at one side, was let go by pulling two triggers which held up the other side of the bottom, and the bag of concrete was dropped into the site excavated for it, close to the toe of the foundations of the breakwater. The outer end of the breakwater had been secured against the sea by dovetailing the concrete blocks into one another, and by erecting a tower of concrete, 20 ft. high, on the end to add weight to it. The diving work had all been executed with the helmet apparatus; there were generally twelve divers under water at one time, and four shifts of diving work of four hours each were obtained per day in summer. A description was then given of the concrete blocks and the machinery for making them, with particulars as to the concrete mixing and the cement used. The proportions of the materials were 1 of cement to 4 of sand and 5 of gravel. With respect to progress and cost, it appeared that, from the time the machinery was fairly at work, about 300 lineal feet had been completed per annum; and that, taking into account the value of the plant now being used on another of the Aberdeen Harbour works, the cost had not exceeded the esti-

mate. The total length of the breakwater was 1,050 ft., and on this £76,443 had been expended. In conclusion, the opinion was expressed that concrete blocks of the ordinary size of from 10 tons to 20 tons each were not suitable for building a solid breakwater on sand or other soft material, and it was recommended that the parts of such a work below low water should be in blocks of from 100 tons to 200 tons weight each, and that some of these blocks might with economy and advantage be deposited in a liquid state in bags.

#### ARCHITECTURAL RELICS.

THE Rev. Dr. Huntingdon, rector of All Saints', Worcester, Massachusetts, having applied to the Dean of Worcester for some relic of the Cathedral to build into his new church, has received from the very rev. gentleman two pieces of stone, with a note, in which Dr. Yorke says:—"I would gladly have sent a plain square stone as a 'corner stone' if I could have found a suitable piece, but there is nothing but sculptured stones saved, and those are but fragments of ornaments replaced in the restored building. Still, I think you will say they have an interest beyond what any plain block could have, bearing on them, as they do, the marks of mediæval fancy and skill, which will assist to transport the mind of many a visitor of All Saints' to the beautiful and venerable cathedral of which they formed a part so many centuries ago. I should tell you that they came from the Lady Chapel, which is a very beautiful specimen of Early English architecture at the east end of the Cathedral. May I suggest that beneath these relics, wherever they may be placed, a brass plate may be inserted bearing some such inscription as the following:—These relics of Mediæval Architectural Ornament once adorned the Lady Chapel of the Cathedral Church of Worcester, England, and are presented to the Church of All Saints', Worcester, Massachusetts, by the Dean and Chapter of the above Cathedral, as a token of brotherly regard and christian unity. I shall be glad to hear that these precious relics arrived safe, and meet with your approval."

#### CORRESPONDENCE.

##### NOTES OF WORKS IN SOUTH MAYO.

TO THE EDITOR OF THE IRISH BUILDER.

ABOUT a mile from this town is the demesne of Creagh, formerly the property of James Cuffe, Esq., D.L., and now in the possession of Captain Knox, D.L., a scion of the noble houses of Westport and Tyrawley. Captain Knox is erecting a beautiful manor house to the right of the French château lately occupied by his predecessor. The new mansion is approaching completion, and has all the modern appliances. The masonry cannot be excelled in the province, and the chiselling of the stonecutter may vie with any other private residence in Ireland, the limestone of the district being so finely and artistically wrought, assuming whatever design or shape the workman wishes. The plan of the house is that of an oblong, having a massive square tower in the centre, flanked by two wings, commanding extensive views of the "Broad Lough Mask," behind which we get noble views of the Western Highlands and the Port Royal Mountains. Mr. S. U. Roberts, C.E., is the architect; and Mr. Semple, of Galway, is the contractor. The estimate cannot fall short of £10,000 or £11,000, including terraces and approaches.

Pursuing my pilgrimage on to Cong, I observed the vast improvements Sir A. E. Guinness, Bart., is effecting on his estate at Ashford. He is enclosing Strandhill Demesne with an iron paling (furnished, I hope, by a Dublin house). To this enclosure, which is designed as a deer-park, there will be access from Ashford House across the Cong River by means of an iron bridge, on the Courtney

and Stephens' principle. All that art and money can do, Sir Arthur is doing in vieing with nature to make this remote and hitherto neglected and curiously-situated region an "Elysium on earth."

Iron water-pipes are being laid down from Cong to Ashford House, to be worked by a turbine wheel, not yet set in position. The house is undergoing some alterations and additions, which, when I see, I shall let you know; as also a work of art, now in hands for three years, by a native workman, which is the armorial bearings of the family, wrought, I understand, to perfection on a slab of blue marble, 10 ft. square, quarried in the locality.

Ashford demesne is laid out with consummate skill and taste; the avenue and walks are macadamised in best style; the grass on the sides is closely shaven, with iron gates erected at intervals. A large square tower, with a donjon or keep, has been built on a rising ground near the pheasantry. This tower commands fine views of the loughs Corrib and Mask, "the Plain of Moytura," and the country all round as far as Ballinrobe, Tuam, and Galway. The banner of the family is seen waving on the donjon when they are at home.

For a circuit of a mile or so round Cong, there are many curiosities in the way of caves or subterranean water-courses, three of which are immediately outside the grand entrance—"The Pigeon Hole," "The Horse Leap," and "The Battery"—each well worth the tourist's while to explore.

Though last, not the least attractive is the regal old abbey of Cong, founded about ten centuries ago, where rest, in a modest grave overgrown with docks and nettles, the mortal remains of the last king of Ireland. It is a disgrace to his kindred (if he have any) that they do not erect a tomb or monument over the remains of poor Roderick O'Connor. I would furnish them *gratis* with a design of a monument (a Celtic cross) which I think would be appropriate. I leave the matter in good hands, and remain, sir, yours faithfully,

J. N. GILDEA, C.E.

Ballinrobe, 21st Dec., 1874.

#### THE BELFAST CATHOLIC HALL COMPETITION AND THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Your issue of the 1st inst. contains a report of the opening sessional meeting of the Royal Institute of Architects, the third paragraph of which is entirely devoted to remarks upon the recent competition for the erection of the new Catholic Hall, Belfast. Misconception pervades the whole of it. The committee do not at all understand the matter in the sense the report represents; and, before the Institute records the minute the report asks, the facts ought to be rightly understood. At no time did the committee surrender their freedom to be the ultimate judges in awarding the premiums. Why was reference made to the council? will be asked. Merely to *help the committee* in arriving at a conclusion, the council acting as their auxiliaries when forming an adjudication of the merits the plans relatively possessed, so that the functions of the council were simply to *advise and recommend*, that of the committee to *select and award*.

It is true the committee did not act upon the council's recommendation—there was no obligation on them to do so; they finally adopted a design, not, however, for the reasons the report alleges, viz., "indifferent execution of drawings," "apparent cheapness," and "a visible disregard of outward appearances." The committee did not want artistic execution of drawings—that was expressly forbidden; lines sufficient to be intelligible was all that was required; and the committee unanimously considered that the design selected better fulfilled the objects of the building and the terms of the competition, and also, for a paramount reason, its internal arrangement giving a greater amount of accommo-

dition. People generally live within doors, and it is surely pardonable to prefer internal comfort than sacrifice that for exterior decoration. Most people will think that exterior embellishment is a poor substitute for interior discomfort. Meantime the building progresses, and, I am happy to say, is not wanting in ornamentation—substantial without being fantastic. In the eyes of the report, the committee have perpetrated the folly of preferring the useful to the ornamental. How truly wise the council were “in abstaining from noticing it.”

JAMES CAMPBELL,  
Hon. Sec., Catholic Hall Committee.  
Belfast, Dec., 1874.

[Perhaps from one or more of the parties most interested a reply will be given to the above letter. In view of such a result, it is better, perhaps, not to give expression to any opinion on our part, to the prejudice of either side. In our last year's volume the nature of the competition was discussed, and the remarks we made at the time seemed at least to be warranted by the circumstances of the case.—ED. I. B.]

### ST. PATRICK'S NEW R.C. CHURCH, BELFAST.

THE style of architecture adopted for the new Church of St. Patrick, Donegall-street, Belfast, is the Romanesque, the chief features of which are the prevalence of the semicircular arch, bold simple details, and strong massive construction. In plan the church will consist of nave, side-aisles, large transepts, sanctuary, side chapels, sacristies, &c. The nave will be 32 ft. 6 in. wide, and from inside of west wall to apse 125 ft. in length. Across the transepts the length will be 96 ft. by 45 ft. wide. In the transepts galleries are provided, but kept back from the line of aisles on either side, so that although accommodation for between 800 and 400 persons will be provided by means of these galleries, they are so designed as not to interfere in any way with the architectural effect of the church; and, although their occupants will have a full view of the sanctuary and side chapels on entering the church by the western doors, no indication of the existence of such galleries presents itself. The galleries will be approached by spacious staircases, each with its own external door entrance at the north and south transepts respectively. The nave is terminated at the west end, which forms the façade in Donegall-street, by a massive tower and spire rising to an altitude of 180 ft. The construction of the upper portion of the tower is very original and ingenious; for although, until it clears the nave roof, it is a parallelogram on plan—the full width of the nave across the front by half the depth—it is reduced to a perfect square over the roof without in any way disclosing, owing to its peculiar treatment, that such is really the case. The upper portion of the tower is designed for a peal of bells, and also possesses a chamber for one large bell up to about three tons in weight. The front wall of tower (which, under the peculiar arrangement of the design, forms the west wall of the nave) is pierced by a large double entrance doorway, enclosed by a deeply-moulded arch, within which, in the tympanum, will be a statue of St. Patrick, 7 ft. high. Over the great doorway will be a deeply-recessed rose window, contained within three orders of mouldings, supported by as many shafts of Dumfries stone, with carved capitals and richly-moulded bases. To the springing of

the arch, which encloses the west window, and which, it may be added, imparts dignity and grace as well as a sense of solidity and massiveness to the design, the height is 48 ft.; and to the soffit of the inner order of mouldings over window, 52 ft. Within the tower, over the main entrance, and under the west window, will be the organ gallery, approached by a spiral stone staircase. The eastern end of the church presents the features of a semicircular apse, the full width of the nave, flanked at either side by side chapels. The sanctuary, consisting of the foregoing component parts, is separated from the nave and transepts by three stone arches—the centre one rising to a height of over 50 ft. from floor. The apse, or chancel proper, is lighted by seven lancet windows arranged round the circle; and when these windows are filled with figure subjects in stained glass, the effect will be very rich indeed. Rose or wheel windows light the side chapels, and the intention is that at a future date these, as well as the windows of the chancel, shall be filled with painted glass of a character to harmonise with the design of the church itself. The nave will be separated from the aisles by an arcade of six lofty stone arches on each side, supported on columns of red Dumfries stone, with white stone capitals (carved) and bases. The height to the crown of arches will be 25 ft. from floor. Over these arches is a lofty clerestory, lighted by a continuous range of lancet windows—two to each bay or division—in the length of the nave. The roofs throughout will be constructed of worked and moulded principals, having a semicircular rib, and the spaces between them will be divided into panels, and sheeted with pitch pine polished sheeting, laid diagonally and following the curvature of the principals. This form of ceiling is not alone excellent for its graceful effect, but is particularly calculated to perfect, as far as possible, the acoustic properties of the church. To the centre of the ceiling from the floor line the height will be 53 ft. The confessionals are provided for within the thickness of the walls. The new church will be seated to accommodate over 2,000, allowing the ordinarily recognised superficial area for each person.

The design (which was unanimously selected by the bishop and the committee) is by Mr. T. Hevey, F.R.I.A.I., in conjunction with Mr. M. H. Thompson, and the works will be carried out jointly by them. Messrs. Collen Bros., Portadown and Dublin, are the contractors. We give an exterior view with present issue.

### PUBLIC RIGHTS AND PUBLIC NUISANCES.

WATER—continued.

#### TWENTIETH ARTICLE.

OF metallic impurities in water, the most common is that of lead, which is chiefly derived from the use of lead pipes or leaden cisterns that convey or hold the water. In the mining or metalliferous districts there is always need for a scrutiny, particularly where there are lead or copper mines. Water that contains more than a trace of iron is not suitable for domestic purposes.

Several fair tests exist at present, well known to our public analysts, for finding the amount of different metallic and organic impurities in water; and these analyses should be insisted upon by the public before any new supply of water is furnished for general use. To ascertain the exact amount of organic impurity in drinking and potable

waters, is a matter of great importance; but it is only within the last few years that chemical tests of sufficient delicacy have been discovered for the purpose. It is necessary to know exactly the quantity and quality of the contamination, and whether the water is dangerously impure, or if the animal excreta it contained or contains has undergone complete destruction.

In London it is stated the urine of the population mixed with about 30 gallons of water per individual constitutes the sewage. There is also the faeces, soap, and other kinds of refuse. In average urine the organic solids reach to about 3 per cent.; and in the London sewage it is calculated the urinous organic solids do not exceed 0.08 per cent. on an average. The maximum proportion in London is 8 parts of urinous organic solids in 10,000 parts of sewage; this amounts to 21 grains per gallon.

Well water which has received one-twentieth of its volume of sewage would, of course, be very foul; still in such a well there would be only one grain of urinous organic solids per gallon. Even 1 per cent. of sewage in a well renders it, if not exactly unfit for use, still undesirable, though this would be only 0.2 grains of the solids per gallon.

Dr. Frankland reports that during the month of December, in consequence of the Thames being in flood, the companies drawing their supplies from that river experienced the usual difficulties in delivering efficiently filtered water. On the 3rd inst. the Chelsea company supplied “very foul water,” whereas that distributed by the other companies was clear and transparent. In the water of the Grand Junction and Lambeth companies “living and moving organisms” were found. The Chelsea company's water, however, besides “abundance of such organisms, contained fragments of woollen and cotton fabrics, clots of the mycelium of a fungus, and fibres of partially digested or decomposed flesh meat.” Dr. Frankland further adds, “the water thus charged with faecal and other refuse matters was unfit for dietetic purposes, and could not be so used without serious risk to health.”

The Vartry water in Dublin, according to Professor Cameron, contains only four grains of mineral and vegetable matter per gallon, and is free from sewage impurities; and yet it is of a deadly yellowish hue. We all like to see and have a sparkling water, quite transparent; yet it has been proved that these qualities are often associated with a high degree of impurity.

Passing for a few moments from the present to the past, it is both interesting and instructive to take notice of the views and opinions held in the last century upon certain drinking waters in Dublin, mostly of the mineral or supposed mineral classes. The reader, by consulting Dr. Rutty's work on the “Mineral Waters of Ireland,” and Dr. Lucas's “Observations” on the same, and also Dr. Rutty's “Natural History of Dublin,” will find much to amuse him on the question of the supposed good qualities of certain waters, once held in high repute in the city and provinces for their medicinal virtues. The natural and artificial analyses made by Dr. Rutty, viewed in the light of the present day, give rise to a smile, and to a suspicion that many of the well and pump waters whose qualities he extolled owed their purging properties more to the amount of organic solids they contained than to the other medicinal properties with which they were credited.

Bishop Berkeley had unlimited belief in the curative qualities of tar water, wrote in its favour, and supplied the public with numerous cases of cures he witnessed himself, or had on the authority of credible witnesses. Dr. Rutty was also favourable to the use of tar water; but in his account of the mineral well, pump, and “spa” waters of the City and County of Dublin, he speaks in very high terms—at least of a number of them.

Apart from these articles, we will on a future occasion devote a paper to the subject of olden wells of the city and county so rap-



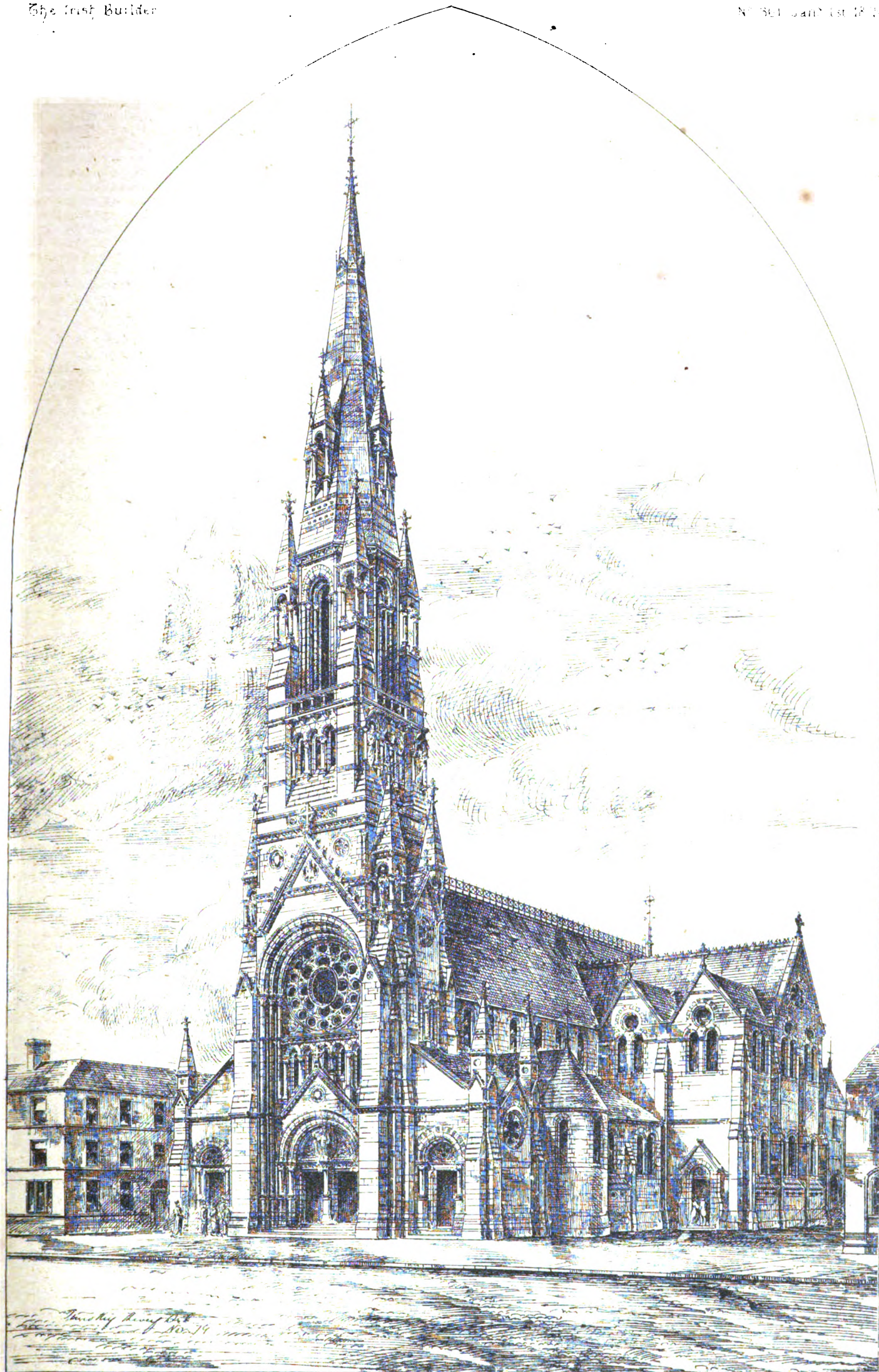


Photo Lithographed by Pim Brothers & Co. Dublin

## NEW CATHOLIC CHURCH, DONEGALL STREET, BELFAST.

Architects, { TIMOTHY HEVEY, F.R.I.A.I.  
MORTIMER H. THOMSON.





turnoaly described by Ratty. Though questioning many of his statements, we are prepared to admit that if some of the old wells of Dublin were kept free from impurities, they might have continued to have proved very beneficial as drinking mineral waters, and might have superseded the use of some German and other foreign waters.

The following is a list of some of the well or pump waters at present used in the city and suburbs, and the amount of solids they contain :—

COMPOSITION OF WELL WATERS FROM CITY AND COUNTY OF DUBLIN.  
One imperial gallon (70,000 grains) contains in grains :—

	George's-st., Kingstown	Pump at Nutter, Donnybrook	Pump at Burlington- road	Pump at Ranelagh	Model Farm, Glanserin
Solid Matters,	86 720	65 780	83 840	85 500	83 880
Including—					
Albuminoid Nitrogen	0 009	0 006	0 006	0 006	0 035
Ammonia	0 004	0 004	0 004	0 004	0 232
Nitric Acid	Large amounts	Traces	Traces	10 803	Traces
Nitric Acid	76 600	20 950	30 750	15 73	36 750
Sulphate of Lime	16 000	3 600	6 320	3 460	1 980
Chlorine					

The Vartny, on the 20th December, 1874, contained 4.98 grains of solids per gallon, including 0.004 grains of albuminoid nitrogen, 10.004 grains of ammonia, traces of nitric acid, and 0.48 grains chlorine; no sulphate of lime.

Speaking of the hardness of Dublin waters—those supplied from the soil of the county,—Dr. Cameron thinks the hardness is due to the presence of earthy salts—chiefly chalk or gypsum. In several parts of Ireland the spring waters contain great quantities of magnesium and calcium salts, and this appears to be remarkably the case in the city and county Dublin. The rock formation of Dublin is limestone mixed with black shale, and it is known to builders as well as geologists as calp, or the ordinary building stone of Dublin.

Creeping or overtopping the solid rock there is a stratum of limestone gravel, averaging about 40 ft. in depth. Part of the bed of the Dodder is dolomite or magnesian limestone. The drainage of this limestone gravel supplies a very large portion of the well water of the city and suburbs. Some of the wells in the southern suburbs are supplied by the drainage from the dolomitized limestone. Dublin well water, in general, is very hard, and is not suited for detergent purposes. Dr. Cameron thinks that it is chiefly owing to its large amount of carbonic acid, and low temperature, that it is a well-flavoured water, even when it contains an excessive quantity of salts. In the water of the pump at the University Club, St. Stephen's Green, Dr. Cameron found the enormous amount of 168 grains of solid matter per gallon, of which no less than 84 were sulphate of calcium, 30 grains of chloride of calcium, and 20 grains of chloride of magnesium. There were only 2 grains of organic matter in this rather curious water, and our City Analyst says, he generally found that waters in which large amounts of gypsum occur do not contain much organic matter. The analysis of St. Stephen's Green water, it may be remarked, was made by Dr. Cameron before the determination of ammonia &c., in water was in use. An analysis by the more recent tests might give other re-

sults. Some doctors and analysts differ much in opinion as to the value of hardness as against softness, and *vice versa*, in water. When some of our chief towns were about being procured a new supply, the evidence went in favour of a soft water, but Dr. Letheby, the late medical officer of health of the city of London, made a rather startling statement in 1869. He stated that the use of soft water in a town greatly increases the mortality of its inhabitants, and he has supplied tables to bear out his assertions, including Dublin. The rate of mortality in this city, it must be acknowledged, at present is high, and it certainly would be satisfactory to be finally assured whether the death-rate of Dublin is in any degree increased by the use of the Vartny water. Professor Cameron is clearly of the opinion that the substitution of "the pure soft water of the Vartny" for the hard water previously supplied by the canals, has produced an improvement in the public health. It appears from Dr. Letheby's report that, the *savans* appointed by the authorities of Paris and Vienna, to decide on the quality of the water to be supplied to those cities, reported in favour of water of moderate degrees of hardness. It would indeed be a sad thing to find out that the water supplied to Dublin, which has cost the citizens half a million of money, is not a good water or conducive to the preservation of the health of the inhabitants.

Soft water is extensively drunk in many towns, and so is hard, and each seems to have its advocates. Dr. Gardiner, late medical officer of health for Glasgow, and author of a work on Air and Water, stated he did not know of a single fact showing that soft water in the many instances in which it was brought into populous places instead of hard, had increased the death-rate. If the sanitary circumstances of towns are otherwise good, we believe it will be found that soft water, free of organic impurities, and similar to that which supplies Dublin, is a comparatively safe water, both for drinking, potable, and domestic purposes. Well water of moderate hardness, free of impurities, may also be found a well-flavoured and palatable water. Human tastes differ in drinking and eating as well as in dressing; and, apart from foulness, soft and hard waters are likely to have their separate advocates and users.

As sanitarians, we are clearly of the opinion with the best of authorities, that foul water, both hard and soft, is the common carrier of contagious diseases, and that typhoid fever and Asiatic cholera may be often traced to the use of sewage-contaminated water. It is a moral duty of the heads of families, and a public duty on the part of the Government and local bodies, to use every exertion in procuring the best water the country or district can afford. If they fail in doing this, they ought to be held accountable for the lives of those whose deaths can be traced to the drinking of the impure water supplied direct from the water mains of town or city.

#### IMPROVEMENT OF WASTE LANDS.

OUR readers are aware that for some months past we devoted several articles to the reclamation of our waste lands and foreshores. The subject is daily growing in interest, and is at present occupying a good deal of public attention, with a view to practical operations, which we have reason to believe will soon be commenced. We have only space to-day to give some incidents from Arthur Young's "Tour in Ireland in 1780"—often before alluded to in these pages,—and an extract from Nimmo's Report in 1822 to the Right Hon. Henry Goulburn. These two extracts will furnish interesting illustrations in connection with our subject. In next issue we may follow up the subject by a comparison of valuation of waste lands in Ireland with certain land estates in Scotland, and also furnish some particulars of improvements

effected in other parts of the kingdom on waste-land estate :—

#### INCIDENTS FROM ARTHUR YOUNG'S "TOUR IN IRELAND IN 1780."

"Mr. Martin, of Connemara, let Mr. Popham 14,000 acres for three lives, for nothing; next three lives, £150 a-year, or 2½d. an acre, and then 61 years at same rent.

"The Prince of Coolavin, as well as his father, would not let his children or strangers sit at the royal table. On Lord Kingston, O'Hara, Wynne, Sandford, Mahon, and Cooper calling at his house, he said to them, 'O'Hara, you are welcome; Sandford, I am glad to see your mother's son; as to the rest of you, come in as ye can.'

"The prices of provisions then were—beef, 21s. per cwt. (2s. 6d. higher than ever before); pork, 18s. to 20s.; butter, 44s. (six years previously only 25s.); salmon sold fresh at 1½d. per pound, and salted at 18s. to 20s. per cwt.; rabbits without skins, 1d. each. Land and wages were low in proportion."

We suppose that Connemara is nearly as waste and uncultivated as in Young's time, though a great portion is capable of reclamation, when the people are said to be starving from want of employment. Money was very scarce in the good old times.

#### NIMMO'S REPORT, 16TH OCTOBER, 1822, TO RIGHT HON. HENRY GOULBURN.

"Connemara and Erris cover each 600 square geographical miles, and together about one-fourth of Connaught. Were they equally well cultivated and ploughed with the remainder of Connaught, they would support an increased population of at least 200,000, who would have the additional resource of a most productive fishery. The possibility of improving these countries has been sufficiently explained in the parliamentary reports on the bogs of Ireland. The uncultivated state of these moorlands seems to mark them out as a proper field for the public works to be undertaken by the Government. Though there are admirable natural harbours in abundance—the finest indeed in Ireland,—but no quays or piers; and from the want of roads, the inhabitants must get their supplies by boats from Galway or Westport."

Roads have since been made and piers erected. Over fifty years have gone past, and what has yet been done? The Law Life Company bought from Mr. Martin, and they have sold to a London brewer. The State should purchase and reclaim where the proprietors won't do so.

#### NOTES OF WORKS.

New Convent of St. Patrick (Mercy) at Downpatrick has just been completed, at a cost of over £5,000. Mr. M. H. Thompson was the architect, and Mr. John Murphy, of Belfast, the contractor.

New schools in connection with the above convent are about to be built, under the direction of and from designs by the same architect, at a cost of about £1,000.

New manse for the Presbyterian congregation of Carrowdore, Co. Down, at a cost of nearly £1,000. Mr. M. H. Thompson, Belfast, architect; Mr. Moore, Holywood, being the contractor.

New Catholic Church in course of erection at Kirkeubbin, Co. Down. Mr. John O'Neill, Belfast, architect.

We understand a new Catholic Church is to be soon commenced (from designs by an English architect) at Newtownards, Co. Down. The cost is to be borne by Lady Londonderry.

New Unitarian manse, Dromore, Co. Down, at a cost of about £1,000. Mr. T. Hevey, architect.

## THE PAST AND PRESENT MEDICAL CHARITIES OF BELFAST.

At the second sessional meeting of the Ulster Medical Society, held last month, the President (Dr. Charles D. Purdon) delivered an excellent address on "The Past Medical Charities of Belfast as compared with the Present." The address, though dealing with the subject of Medical Charities, furnishes many interesting items connected with the lives of popular professional men of historic note, as also with the erection of buildings, with which the names of some of our eminent architects of the past are associated. For these reasons, and for others of a sanitary nature, we think the address, as a whole, will not be out of place in the pages of this journal. In consequence of recent sanitary legislation, and the passing of the English Public Health Act of 1872, and the Irish Health Act of last year, the medical practitioner and the architect and sanitary engineer are brought into closer contact. It becomes necessary, therefore, to take cognizance of the utterances of medical men whenever they treat of matters bearing upon topics advocated by this or similar journals. We need not offer any further apology for the publication of the interesting address that here follows:—

Gentlemen, I thank you for the office to which you have elected me, as in so doing you have shown your desire to renew your acquaintance with old practitioners; and as one of that class, occupying the position I now hold, and standing in the place in which we are assembled, I cannot help taking a retrospective view of what has passed during my years of school, study, and practice here. The contemplation of these circumstances has so impressed me with the great changes that have taken place in this town amongst the medical practitioners and charities during the last fifty years, that I hope you will not consider the time misspent if I bring before you this evening the medical charities that have existed here, and some of the eminent men who gave their time and services to benefit the inmates, and contrast them with the modern ones and the eminent practitioners of the present day.

When Belfast was a mere village in comparison with its present size—its inhabitants numbering some 17,000—there existed but very few charitable institutions, and also very few medical men; but they, though small in number, were remarkable for talent and philanthropy, as it was mainly owing to their exertions that this hospital owes its existence. Need I mention the name of one of its founders, who, though departed nearly fifty years, still lives in the memory of many of the seniors among you as a bright ornament of the profession—a man who, though commencing practice late in life, through the power of his intellect and energy of his character, soon rose to the highest eminence? This was Dr. Stephenson, sen., who at the beginning of his career was a Presbyterian clergyman, officiating in the Ards, but on account of theological disputes with the Synod, resigned his charge; and, notwithstanding that he was in middle life, commenced the study of medicine in Scotland, where he took his degree, then settled here, and was soon extensively engaged in practice, succeeding Dr. Halliday, sen., who was then retiring from active business. Dr. Stephenson, being very benevolent, attended the poor in conjunction with the late Dr. M'Donnell, and in 1792 a dispensary was established, which relieved the Belfast Charitable Society and Infirmary from any further expenditure in the external department. In the year 1797, seeing that fever was being imported from Portpatrick, he was foremost in advocating a fever hospital, which was at once established according to his plan in conjunction with the dispensary, premises being taken in Berry-

street, where, in the first six months, he attended seventy-three patients, and was so skilful in his treatment of fever that of the first sixty patients admitted not one died, and out of the seventy-three only three died. These prompt measures having caused the fever to abate, the hospital was closed, and no institution of the kind existed until 1799, when a fever hospital and dispensary were established in West-street, where the poor received gratuitous advice. Dr. Stephenson was also one of the first physicians attached to the General Hospital when it was removed to this place. He continued to practise until advanced age compelled him to relinquish his profession, and died at a ripe age—over ninety years. He was always well known by his appearance and dress, as he was rather high in the shoulders, and always wore knee breeches and black stockings, white tie, &c., which was the usual dress of medical men at that time. He was brusque in manner, but uniformly kind to all who excited his sympathy. He died as he had lived, an honour to the profession, and was succeeded in his practice by his son, the late Dr. R. Stephenson, of whom we may say that his entire public life was devoted to upholding the dignity of the profession; and in him we found not only a kind friend as well as a skilful adviser, but also a firm advocate, and all of us who knew him had often reason to be glad that there was a Robert Stephenson.

The next eminent person attached to this institution was Dr. M'Donnell, who was also active in the foundation of this charity, and enjoyed an extensive practice amongst the higher classes. He was a learned and deeply-read practitioner, with a philosophical and inquiring turn of mind, often risking his life in the search for information. He, too, has passed away, after attaining an advanced age. In his appearance he was somewhat remarkable, clothed in drab-coloured knee-breeches and white stockings, white tie, &c., driving in an old gig hung on "C" springs, reading a book by the aid of a magnifying-glass which he held in his hand, with his well-known servant, Mick, beside him. He used to boast that he never carried an umbrella, and exposed himself to all weathers.

The next I have to mention as belonging to this staff is Dr. P. S. Thompson, justly celebrated as a skilful and accomplished physician, who added to his medical pursuits the pleasing study of music, and so skilled was he in it that he was elected permanent president of the Anacreontic Society, a friend, and almost father, to many among us who are now the seniors of the profession. He was also found ready to assist in difficulty, professional or otherwise, and his conduct through life, both to his brethren and the public, was ever in accord with the motto on his coat of arms—"Honesty is the best policy." He, too, has passed away, leaving affectionate recollections of his worth.

Another talented physician attached to this hospital was A. J. Malcolm, whose whole mind was given to the study of his profession; but just as he was beginning to attain an eminence, which foreshadowed a distinguished future, such as he well deserved both by his contributions to the literature of his profession and his skill in healing disease, he was cut off; but, though dead, he speaketh to the pupils of this institution in the exhibition which has been founded, and which bears his name. I forbear to mention the names of other medical men who have acted as physicians to Belfast charities, as we still enjoy the pleasure of their society, and the advantage of their skill, and I hope that we as practitioners, and the public as patients, may long continue in possession of that society and skill.

I will now draw your attention to another class of practitioners attached to local charities, the first of whom I will mention is one long since passed away, and the record of his talents and experience has been but dimly preserved and handed down—I mean Dr. Halliday, sen., formerly an eminent medical man here, whose advice was sought in all quarters by rich and poor, high and low. He

first came to Belfast as surgeon to the Cameronian Regiment, and his skill was so soon acknowledged that he left the army and settled here, becoming the consultant of the entire county, and was in such demand that he was able to fix his own remuneration of one guinea per mile. Of him it is said that he always attended a consultation in court dress, by way of sustaining the dignity of the profession, I suppose; but being too often called in only when the case had become hopeless, he used frequently to express his opinion of this neglect in his quaint way by saying, "I am like a huntsman, always in at the death." He was succeeded in practice by Dr. Stephenson, sen., and his son, who, however, did not continue many years in the profession, being early confined to the house by disease.

The next in order is Surgeon Comins, who practised in this town, besides holding the post of Deputy-Inspector General of the Forces, and, if my memory serves me rightly, he was also surgeon to the infirmary of the Belfast Charitable Society. He was the first in Belfast who performed an amputation of both legs at the same time, which was thought so extraordinary an operation as to be published far and wide in the newspapers. The sequel to the operation, consisting of the death of the patient, was, however, not noticed. It is said of him that, being of a money-making turn of mind, he kept a flock of ducks at the military hospital, which were fed on the poultices after the patients had quite done with them. These ducks he used to send to the market, but the public having discovered that something was rotten in the state of Denmark (or rather in the state of the ducks), the secret of their diet leaked out, and thenceforward as long as the doctor remained here, ducks were as a drug in the market.

Dr. Drennan also was one of the first attendants of the Belfast Charitable Society. He practised here for some time, and rose to eminence. A great deal of his time was devoted to this society, and I may mention that it was he who introduced inoculation in the north of Ireland. He was of retiring habits, an elegant scholar and poet, and the record of his professional attainments and work may be found in the transactions of this noble institution.

I will now turn to one who, being everything to me, it will, I trust, prove an apology for bringing him under your notice this evening. Of him I will only say that his abilities and character were recognised and appreciated by all who knew him. I need hardly mention the name of Henry Purdon, sen., formerly one of the first surgeons of this place. He came here as staff-surgeon, having charge of the military hospital. As he had great experience in foreign service, he soon became distinguished as a skilful operator, and was for a long time one of the surgeons at this hospital, as also to the Belfast Charitable Society. During his professional career he was invariably the friend and adviser of his brethren, and, though he has long passed away, his place is supplied by his son, Dr. Purdon, once the surgeon of this institution, as well as the colleague of some who are still engaged within its walls; and now the father of the profession in the town.

Another celebrated man was Staff-Surgeon Forcade, who for a long time gave his services to the poor in this town. His skill in operating and in treating those under his care was well known and acknowledged by all. He, too, has passed away, and left but kindly recollections to those who knew and esteemed him. Another pillar of the profession was the late Surgeon D. Moore, who, after being employed in the Royal Navy during the war with Napoleon, settled in Belfast when peace was proclaimed, and gave the benefit of his great experience to the patients of this hospital as surgeon, to which he continued until advancing years caused him to resign his place to his son, Dr. James Moore, who combines in his person the skill of the surgeon with the talent of the painter; all he lacks is the taste of the poet. There is but

one more of the many eminent men who were associated with this charity whom I will mention (for to speak of all as they deserve would occupy more time than we have at command), and that is the late Dr. J. M. Saunders, who was cut off in the prime of life, just as he was rising to great eminence in his profession, leaving a void in this place which it took a long time to fill; and still our remembrance of his thoughtful care of the sick, and his tenderness in treating and skill in prescribing and operating throw a halo around the memory of James Saunders. But having had enough of those gentlemen who gave their skill for the use of these institutions and the advancement of science, I will now speak of the institutions themselves.

(To be continued.)

#### BOOKS RECEIVED.

*The Journal of the Royal Historical and Archaeological Association of Ireland.* July, 1874.

In the part before us we have two lengthened papers. The first is by the Rev. James F. Shearman, and is a continuation of "Loca Patriciana—The Poems of Dubhtach Mac Uí Lugair: Prayer of Ninnius: Prayer of St. Mugent." The second paper is by Mr. G. M. Atkinson, and is entitled—"Some Account of Ancient Irish Treatises on Ogham Writing, illustrated by Tracings from the Original MSS." As to the contents of the MS. known as the "Book of Ballymote," preserved in the library of the Royal Irish Academy, Mr. Atkinson tells—"This volume, though defective in a few places, consists of 251 leaves of large folio vellum (10½ in. by 13½ in.), transcribed by different persons, but chiefly by Solomon O'Droma and Manus O'Duigenann; and it is stated at folio 62 b, that it was written at Ballymote (in the county of Sligo), in the house of Tomaltach óg Mac Donough, lord of Corann, in that county, at the time that Torlough óg, the son of Hugh O'Connor, was king of Connacht; and Charles O'Connor, of Belanagar, has inserted in it the date 1891, as the precise year in which this part of the book was executed. It is a compilation collected from various sources, and may be held to represent to a great extent several other manuscripts. It begins with a copy of the ancient *Leabhar Gabhála*, or Book of Invasions of Erin, imperfect, and differing in a few details from others of the same subject. This is followed by a series of ancient chronological, historical, and genealogical pieces in prose and verse. Then come the pedigrees of Irish saints, and of the great families of the Milesian race, with the various minor tribes and families; accounts of the kings, and tragical death of the beautiful Lady Luaidet, &c. Some of these pieces are doubtless mixed up with what must be regarded as mythological stories, and to these may be traced many of the characteristic popular customs and superstitions still remaining among the native Irish. It contains, also, an ancient grammar and prosody, richly illustrated with specimens of ancient Irish versification; and a treatise on the Ogham alphabets of the ancient Irish, with illustrations. Photo-lithographs of these, taken from my tracings (Pl. I., II., III., and IV., including on Pl. IV. the very characteristic interlaced initial letter of the succeeding treatise, the *Uraicecht-na n-Eigis*, or Precepts of the Poets), accompany this paper. The MS. ends with the adventures of Æneas after the destruction of Troy. In the MS. treatise on the Ogham (fol. 167 bb) the invention of the Ogham character is ascribed to Ogma, son of Elathan, a member of the Tuatha de Danann colony. Ogham inscriptions are constantly referred to in the oldest historical tales, as engraved on the tombs and monuments of pagan kings and chieftains (see the 'Irish Grammar,' by J. O'Donovan, and 'MS. Materials of Irish History,' by E. O'Curry); and from these tales it would appear that such inscriptions contained simply the names

of the persons interred. Thus, in the story in *Leabhar na h-Uidhré*, as to the identifying of the grave of king Fothadh Airgtheach, in the third century, it is stated that his headstone exhibited in Ogham characters the inscription—

"Fothadh Airgtheach nro ro  
Fothadh Airgtheach here."

In addition to the four plates alluded to above, the number is enriched with several wood engravings.

#### THE INSTITUTION OF CIVIL ENGINEERS, LONDON.

THE anniversary meeting of this Society was held in the theatre of the Institution, in Great George-street, Westminster, on Tuesday evening; the president, Mr. T. E. Harrison, occupying the chair. The report of the outgoing Council for the year ending the 30th November showed a very satisfactory rate of progress in the twelve months under review. The number of honorary members was the same, viz., 15; the members had increased from 766 to 792, and the associates from 1,213 to 1,323, raising the collective number from 1,994 to 2,130. In the same time the class of students had been increased to 282 in place of 252. The death-rate was 24 per thousand among the members, and 16 per thousand in the case of the associates, the average of the combined classes being 19 per thousand. The list of deceased included the names of Sir William Fairbairn, Bart., Sir Charles Fox, Sir John Rennie, Mr. C. W. Eborall, Sir R. A. Glass, Mr. Sampson Lloyd, M.P., and Sir Francis Pettit Smith. The gross receipts were £10,000, as against £9,000, and the ordinary expenditure £7,000, in place of about £6,000 in 1873. The investments of surplus income and the cash in hand raised the funds under the charge of the Corporation to £33,158, as compared with £30,223. At the date of the last report of these funds a sum of £11,968 was placed in Government stocks, and £20,950 in nearly equal proportions in guaranteed stocks of seven of the principal railway companies. The report then referred to the various subjects discussed at the ordinary meetings, and stated that premiums had been awarded for meritorious communications to Messrs. B. B. Stoney, M.A.; R. C. Rapier, J. Prestwick, F.R.S.; A. C. Kirk; G. W. Rendel; Major J. Browne, R.E.; W. Douglass; J. M'C. Meadows; and L. F. Vernon Harcourt, M.A. Six Miller prizes had been given to successful competitors in the student class, and it was the intention of the Council to establish a series of scholarships to be called "The Miller Scholarships of the Institution of Civil Engineers," and to award one such scholarship not exceeding £40 in value each year, and tenable for three years, as a reward for the best paper written by a student, supposing the best paper to be sufficiently deserving. In regard to the papers submitted for reading, it was stated that they were now subjected to a more searching examination than heretofore, and that, while original merit was fully recognised, mere commonplace descriptions of ordinary works were no longer acceptable. Active steps had been taken to extend the scope and to increase the contents of the publications, principally by collecting a summary of information from the transactions of foreign engineering societies and from foreign scientific periodicals, so as to render the minutes a perfect record of the progress of engineering science. In carrying out the projected summary it was decided that each abstract should give definite information of engineering works in progress or completed, of mining operations, of railways, of sanitary works, of telegraphs, and treatises of a theoretical character. In future it was intended to issue a volume of about 350 pages as early in each quarter as circumstances would permit. By these changes members in the most remote regions could be periodically informed, not only of what was going on at home, but also of every important transaction which takes place abroad. The Council had felt it a duty to aid the various societies from time to time established for the study of special branches of engineering science and practice, by granting the use of the rooms for their meetings and by other friendly offices, and it was suggested that possibly at no very distant time a plan might be devised to unite still closer the tie between these societies and the oldest association connected with the profession—the Institution of Civil Engineers. The ballot for the election of the Council for the ensuing year resulted as follows:—President—Thomas Elliot Harrison. Vice-Presidents—William Henry Barlow, F.R.S.; John Frederic Bateman, F.R.S.; George Willoughby Heman; and George Robert Stephenson. Members—James Abernethy; Sir William

George Armstrong, C.B., F.R.S.; Sir Joseph Wm. Bazalgette, C.B.; George Berkley; Frederic Joseph Bramwell, F.R.S.; George Barclay Bruce; James Brunlees; Sir John Coode; William Pole, F.R.S.; Charles William Siemens, D.C.L., F.R.S.; Sir Joseph Whitworth, Bart., F.R.S.; and Edward Woods. Associates—Major J. M. Bateman-Champain, R.E.; John Head; and Colonel Charles Pasley, R.E.

#### CORK SCHOOL OF ART.

THE annual meeting for the distribution of prizes amongst the students of the Cork School of Design, was held on the 23rd ult. in the Theatre of the Institution. Some of the works of the students were exhibited in another part of the building.

The Mayor occupied the chair.

Mr. James Brennan, head master, read the annual report, which stated that the position of the school, both in numbers and efficiency, had been maintained. The number of pupils who passed through the school during the year ending June 30, was 188, and there are at present attending classes 159. A course of lectures on elementary building construction is now in progress. Twenty-eight of the students were successful in the examinations of the Science and Art Department in the second grade. Two students were awarded second grade certificates. Two free studentships were also obtained by students of the evening class. In the science subjects of practical plane and solid geometry, and machine drawing, all those who presented themselves for examination were successful, and six Queen's prizes were obtained in those subjects. The report went on to enumerate many instances in which students had received solid practical benefit from the Art teaching of the school. At the Technological Examinations of the Society of Arts, last May, in carriage building and steel manufacture, Messrs. Jeremiah F. Mullins and Mathew Mullane got first and second prizes respectively. The Mayor, following the example of his predecessors, kindly offered prizes, which had been productive of the greatest benefit to the school, and had created a vast amount of healthy competition. The report renewed once more the complaint of the total unsuitability of the present premises for a School of Art, badly lit, draughty, with a leaky roof, and rotten floors. Considering the number of costly Schools of Art erected by other towns, surely Cork with its long bead-roll of illustrious names, should not be behindhand in this provision for Art. The reading of the report was marked by frequent tokens of applause.

The Mayor then proceeded to distribute the prizes, and having done so, said—The very able and exhaustive report they had heard from Mr. Brennan left him very little to say on this most interesting occasion. He had a sincere pleasure, as Mayor of Cork, in being there that night, and in seeing an institution like this flourishing amongst them—an institution which men of all shades of opinion could unite in fostering, and where they could all assemble on common ground and with a common object. He fully participated in the opinion expressed by Mr. Brennan as to the condition—the disreputable condition of the building in which this school was located. He certainly thought its condition was unworthy of a great city. They were apt to be rather boastful about Cork—they always spoke with pride of what they had done in the past, but he certainly thought it a discredit to their city to see art and literature collected in such a building as this. He had seen ruins in many countries—had seen many in Rome, in Pompeii, and elsewhere, and he should say he had seen ruins that were in a far better state of preservation than the ruin in which they were assembled to-night. He had often been much surprised that no effort was made to better this state of things. He did not know whether it was only a dream, but it had certainly been one of the dreams of his life to see a Free Library in Cork, with a Museum and a School of Art alto-



gether. He thought it would be one of the best civilisers they could introduce into their midst, and would give them a ground upon which they could all meet and agree. He might say for himself that if at any time he saw a reasonable prospect of forwarding this scheme, he for one would gladly help it forward, but, of course, one man could do very little unless supported by the voice of public opinion. If any such thing were mooted, he promised them he would do everything he could to assist them. With this digression he resumed by saying that he was, indeed, very proud in taking part in this interesting assembly. It showed they were not receding—that they had among them in the rising generation the elements of artistic success, and that they might have among them those who might follow in the footsteps of men who had made the city famous through the world.

Mr. J. Beale also delivered an interesting address, praising highly the drawings exhibited by the pupils, and speaking warmly of the director of the school, Mr. Brennan.

Alderman Keller was then moved to the second chair, and Mr. R. R. Brash proposed a cordial vote of thanks to the Mayor for the dignified and earnest ability with which he had presided over this, as over every other meeting over which he was called upon to preside.

Alderman Harley seconded the vote of thanks in the warmest terms, and said the Mayor had upon all occasions done his duty manfully, honourably, and to the satisfaction of everybody.

The vote of thanks was passed with acclamation.

The Mayor returned thanks, and, amid applause, announced, as an encouragement to the students, that he would offer prizes next year as before.

#### SANITARY AND OTHER NOTES.

**ANENT the Main Drainage Scheme** the following resolution was proposed, and, after some discussion, carried, in the Municipal Council; but we have yet to see the results, for legion indeed have been the resolutions of the Corporation upon the same subject:—"That application be made to Government for a loan, not exceeding £500,000, to carry out the Main Drainage Works, upon the following terms and conditions as to interest and repayment, viz.:—The interest payable to be 3 per cent. per annum upon the net principal sum due each year; the loan to be repaid by the annual instalments of £6,000 referred to by his Grace the Lord Lieutenant, which shall be granted year by year to the Corporation by her Majesty's Treasury, as well as a proportion of the sum to be allocated by the Government in lieu of the municipal rates upon public buildings in the borough of Dublin, and estimated at £ per annum; the Government, accordingly, to introduce and effect the necessary amendment of the Dublin Main Drainage Act as a public bill in the next session of Parliament without cost to the Corporation. And that the resolutions of Council of the 27th June, 10th August, 18th November, 1874, and all other orders of this Council in relation to this matter which are or may be repugnant to this resolution be hereby altered or rescinded, in so far as they may be opposed hereto."

At a meeting of the Public Health Committee of the Corporation, held on the 19th ult., a letter from the Local Government Board was read transmitting order under seal determining the salaries of medical officers of dispensaries, as sanitary officers, at £25 each per annum. In relation thereto it was moved by Councillor Byrne—"That, notwithstanding the order of the Local Government Board now read, we adhere to our former resolution in relation to the salaries of medical officers of dispensaries, and that the opinion ordered on last Friday be taken forthwith." A division having been called for, there appeared for the resolution—Aldermen Draper, Dempsey, Tarpey, Harris, and O'Rourke; Councillors Byrne, Finegan, Reilly, McCormick, M.D., and O'Neill (10). Against the resolution—Councillors Long, M.D., Sykes, Tickell, French, and the chairman (5). The resolution was therefore declared carried.

**BRAY.**—At a meeting of the commissioners the plans under the proposed Dublin and Wicklow Railway Bill to tunnel under the level crossing at Bray Railway Station were examined.

A meeting of ratepayers has been held, for the purpose of considering the proposed works connected with the roadways and approaches to the Esplanade, as well as other alterations in the existing highway. Mr. Henry Brett, C.E., Township Surveyor, stated that the Railway Company, by their new Bill, proposed to do away with the level crossing over the railway to the Esplanade at Bray, and to substitute for it an open cutting, commencing on the Seapoint-road and passing by a gradient of 1 in 20 under the railway, and then ascending by a similar gradient to a point at the lower end of the Royal Marine-terrace. This tunnel would be very unsightly and objectionable. The company also proposed to obtain power-over all the roadway from a point opposite the International Hotel across to the Carlisle Grounds. The length of the entire cutting and under-bridge way would be about 200 yards. The chief question at issue was the cutting of a portion of the Quinsborough-road, which, in his opinion, would not be serviceable to the township. He thought a better plan would be to utilise and improve the "O'Reilly Dease road" and railway bridge to the north of the station in going to the sea, and the erection of a foot-bridge over the present level crossing. The chairman said it was evident that people would have to go down into a pit and up again, if the present scheme was carried out. The following resolutions were passed unanimously:—1. "That we, the ratepayers of the township of Bray, having heard from Mr. Brett, the engineer of the township, an explanation of the proposed diversion of the roadway on both sides of the level crossing of the Dublin, Wicklow, and Wexford Railway Company, at foot of Quinsborough-road, express our disapproval of same, as tending to cause injury to the Quinsborough-road, obstruction to the traffic thereon, and as destructive of the beauty of the main thoroughfare of the township." 2. "That we, the ratepayers of the township of Bray, authorise the Bray Township Commissioners, as our representatives, to petition Parliament in opposition to the bill now being sought for by the Dublin, Wicklow, and Wexford Railway Company, in so far as the said bill relates to the township of Bray, and do all such acts and things as to them may seem fit in relation thereto."

**BLACKROCK TOWNSHIP.**—At a meeting of the commissioners, on the sanitary reports being read, it appeared that Dr. Cameron was of opinion that five pumps in the township contained water injurious to the public health. Mr. Ferguson said that he had got one analysed at his own expense, and it was proved that it contained water injurious to public health. It was determined to take up the pumps in question. A fountain was ordered to be erected at Williamstown. Mr. Barry advised that the sewer water from the town should be carried in a cast-iron pipe 2 ft. 6 in. in diameter through the railway culvert to the sea, this being a divergence from the present plans. He also considered that it was to be regretted that the original plans were altered, as he found an absence of the semicircles in the plans as first presented to the board. This was, in his opinion, a great mistake; but the materials could be utilised in filling up the culvert. The other portion of Mr. Barnes's plans were fair, and capable of being carried into effect. He (Mr. Barry) would not enter into the question of whether the railway might or might not be injured by the works in progress. But in his opinion everything was feasible if dealt with properly.

**CORK.**—At the recent meeting of the Cork Harbour Board, a letter was read from the secretary of the Steam Packet Company, stating that the bottoms of their vessels had become corroded through lying at the quay. They had the water coming from the sewers there analysed, and discovered that the sewage was the cause of the corrosion. Some Clyde vessels had been injured in the same way, and the company asked the board now to take steps to have the evil remedied. The chairman suggested that the opinion of the harbour master should be got on it. Mr. Sugrue—how could he give an opinion on a sanitary and engineering matter? Mr. Cantillon thought the letter was a matter for the Corporation to consider. The chairman said something ought to be done about it, for the existence of such an evil was injurious to the port, and derogatory to the trade. On the motion of Mr. Julian, the letter was referred to the Corporation.

**DOWNPATRICK.**—At a meeting of the guardians, which was specially convened for the purpose of considering the water supply and the sewerage accommodation of the town, Mr. Boyd said he thought that he expressed his opinion that the committee should be formed of persons who were not guardians and not interested in the matter. He would now suggest that all the guardians acquainted with the town be appointed, with power to add to their number. After some further conversation, the question was adjourned for three weeks.

**LISTOWEL.**—At a meeting of the union sanitary board there was a warm discussion on the head of salaries to dispensary and other sanitary officers, and the authority of the Local Government Board was questioned, and their powers to enforce their threats of fixing the salaries by a sealed order. The following resolution was proposed and carried—"The board were not disposed to make any change in the amount of salaries already fixed by them for the sanitary officers, at least until they receive official intimation of what proportion or scale has been fixed (according to the Act) by the Lords of the Treasury, and also what proportion of same is to be recouped to the local fund."

**PARSONSTOWN.**—At the special meeting of the union sanitary board the salaries of the sanitary officers—fixed some time since at £10 for the larger districts, and £7 10s. for the smaller—were again reconsidered, owing to the Local Government Board declining to sanction the proposed scale. A resolution was passed respectfully declining to reconsider the question, on the ground that as yet they were not aware of the nature or extent of the work to be done, and also that plenty of qualified men could be had at lower rates. Mr. Armstrong expressed his conviction that the Local Government Board would send down a sealed order compelling the guardians to pay higher salaries. Mr. Garvey hoped in that event the mover and seconder of the resolution would be called upon to pay the difference out of their own pockets.

**TULLA.**—At a meeting of the union sanitary board a letter was read from the central authority in reference to additional salaries proposed for the sanitary officers. The communication of the Local Government Board stated that it was the duty of the guardians as a sanitary board to give due effect to the provisions of the Public Health Act so long as it is in force. They urged on the board to reconsider the propriety of no longer persisting in the views expressed by them on this subject, and adopt a scale more in accordance with the wish of the Local Government Board. The following resolution was then passed unanimously:—"That, owing to the pressure put upon us by the Local Government Board, and the certainty that they would, without further delay, fix those salaries by sealed order, it is resolved that the salaries of the several sanitary officers be fixed as follows:—Consulting sanitary officers, £25; sanitary officers, each £20; sub-sanitary officer O'Driscoll, £4 2s. 6d.; sub-sanitary officer J. Daffy, £3 7s. 6d.; executive officer, £22."

**WEXFORD.**—At a meeting of the town council a prolonged discussion took place on the head of salaries to sanitary officers, and the appointment of a sub-sanitary officer, as requested by the Local Government Board. Mr. Hinton proposed, Mr. O'Reilly seconded, and it was passed—"That the salary of Dr. Sheridan as sanitary officer be £15 per year." Mr. Faris proposed, Mr. Hadden seconded, and it was also passed—"That the salary of Dr. Creane as consulting sanitary officer be £15 per annum." Mr. Faris then proposed, and Mr. Hadden seconded—"That the salary of Mr. O'Leary as executive sanitary officer be fixed at £20." Mr. Hinton made a strong opposition to this proposal, on the ground that this officer was at present overpaid. This officer's salary alone amounted to no less than 3d. in the pound, and he thought should not be added to. At the council's request, Mr. O'Leary stated the emoluments accruing to him as town clerk were—£92 from the borough rates, £40 from the chairman of quarter sessions for jurors' lists, £20 from Local Government Board, and £20 as clerk to the borough court, making a total of £172 per year. A short discussion then ensued, but it was ultimately passed that the salary of £20 be fixed, Mr. Hinton protesting against it. With reference to the sub-sanitary officer, it was proposed by Alderman Stafford, and seconded—"That John Hearne (late sanitary inspector, and mayor's sergeant at present) be appointed sub-sanitary officer, at a salary of £20 per annum." The resolution passed *nem. con.*

At a meeting of the union sanitary board of the same town a petition to Parliament was adopted, complaining of the extraordinary powers vested in the Local Government Board by the Act, of taxing people without their consent and against their wishes. The petitioners considered that the sanitary laws previous to the passing of the late Public Health Bill were sufficient for the purpose of maintaining the public health, and that the late measure created new offices and emoluments further to burden the people. Copies of the petition were ordered to be sent to every union in Ireland.

In several union sanitary boards, and other town boards throughout the provinces, considerable discussions have taken place on the head of salaries to medical officers, and some strong language has been uttered, and continued opposition to the provisions of the Public Health Act is manifested.

## FIRE.

THE extensive stores of Messrs. Henshaw and Co., situate at the rear of their warehouse in Christ Church-place, have been completely destroyed by fire. It has been estimated that property, consisting of hardware and brushes, &c., to the amount of £15,000 has been sacrificed. The stock and premises were insured.

## THE COLOSSEUM.

THE following interesting letter appears in the *Times* :—

SIR,—The following particulars may be interesting to your readers. The excavations of 1812 have been filled in, many supposed that the ground upon which they trod was the level of the arena; this is now proved to have been a mistaken idea. At 20 ft. lower down has been found the original arena, paved with small bricks, a few feet above which was the Podium, or seat of the Emperor, Vestal Virgins, &c., protected from the arena by iron bars. It is of more recent date than the main building; probably the repairs of Belisarius, after the earthquake of 486. A wall rising from the arena, relieved by recesses and grated windows, formed the front; behind was a double portico, which ran round the whole building. Fragments of marble chimeras, with long wings, which ornamented the seats of the Podium have been found.

At the end opposite the present entrance a long passage has been opened, above the level of the arena floor, branching off at a little distance to the Palace of Titus on the Esquiline, and to the menagerie on the Cœlian; under this passage is the drain, into which runs a smaller drain that went completely round the arena at the back of the Podium. On the right and left of this passage, connected with it, but level with the arena, two dens have been cleared out 27 yards long by 5 wide, containing six holes in the floor, in the centre of square blocks of stone, and these holes are faced with bronze, evidently the sockets into which metal posts were fixed, to which the beasts were chained. The first hole is  $4\frac{1}{2}$  yards from the entrance, the second  $5\frac{1}{2}$  from the first, the third  $4\frac{1}{2}$  yards from the second, the fourth  $2\frac{1}{2}$  yards from the third, the fifth  $2\frac{1}{2}$  yards from the fourth, the sixth is 3 yards from the fifth, and from the sixth to the wall at the end of the den is 2 yards.

In a gallery that runs round the arena at the back of the Podium, and on each side of the entrance to the arena, under the Podium, are similar holes, but without the bronze facings. Beyond this gallery and the drain which ran round the arena is a row of smaller dens, 4 yards by 3 yards, going completely round the arena; about three parts of the way up the back wall is an aperture communicating with the gallery above, by which means the beasts were fed.

A large piece of the wooden framework of the moveable arena has been discovered, in a decomposed state; proving, as mentioned in the classics, that at some date the arena was a moveable platform. "The lions which Commodus killed sprang from the subterranean parts of the arena."—Herodian. The poet Calphurnius mentions "the cleaving asunder of the arena and the wild beasts rushing forth."

The small brickwork chambers built upon the arena and crossing it are supposed to be part of the fortifications of the Frangipani, or chambers under under the moveable arena, as they are of comparatively recent construction.

Fragments of a marble pavement have been found, now placed on pedestals, with scenes from the arena roughly depicted upon it, as also a section of the amphitheatre.

The soil cleared out in the passage, dens, galleries, and just above the ground floor was found to be composed of mud deposited during a flood or floods by the Tiber, the

composition of which may still be seen in parts of the long passage not yet cleared. The most remarkable of these floods, which lasted some days, and did immense damage to the city, were those of A.D. 555, 590, 725, 778, 1476, 1580, 1557, and 1598.

We may presume, from the nature of the soil, that at some early date, probably A.D. 555, one of those terrible floods reached the Colosseum, and on the waters retiring a great deposit of mud was left covering the ground floor, and filling up the various passages, galleries, and dens; and that the authorities, instead of clearing out this deposit, added to it to make a solid floor, and used the wooden arena above.

The Colosseum stands very low—in fact, where the lakes of Negro's golden house was situated, so that the flood might easily reach it, as also by means of the drain which ran into the Tiber; for in the present day the Forum is flooded by the water rushing up to the Cloaca Maxima, when the river is high.

The interest attached to the present excavations under Signor Rosa must apologise for the length of my letter.—I have the honour to remain, sir, yours obediently,

S. RUSSELL FORBES, Author of  
"Rambles in Rome."

70 Piazz di Spagna, Rome.

## CIVIC LYRICS.—No. LXXVI.

## EXCELSIOR.

On again! another year  
Revolves upon its pivot;  
We enter it without a fear,  
And trust in God to live it.  
We wish good will to all our friends,  
With greeting warm and hearty;  
We seek to gain but public ends—  
The Nation is our party.

On again! for honest truth  
In every art and science;  
The ways of man are still uncouth,  
Through ignorant reliance.  
We've need to teach, and preach, and lash,  
To raise the public morals;  
Undaunted always, but not rash,  
If we would win our laurels.

On again!—our aims are just,  
Although they may be slandered;  
We hold a brief, and plead we must  
The cause that's on our standard—  
For Architecture and for Art,  
For Health and Sanitation,  
And Skill in workshop, mine, and mart,  
To build anew the Nation!

CIVIS.

## A BRACE OF DUBLIN BILLS.

THERE are two bills in print and lying before us which are likely to attract considerable attention in next session of Parliament. They are known as the "South Dublin Railway and Land Reclamation," and the "Dublin Main Drainage." We have already slightly alluded to the former, but intend to return at an opportune occasion to its further consideration. The second bill is an important one, and deserves a full and fair discussion on its merits and the circumstances surrounding its introduction. At present we have but space to indicate its nature, as appears upon the face of the bill. It is "To make better provision for the Main Drainage of the City of Dublin and the neighbourhood thereof, and to constitute for such purpose the Dublin Main Drainage Board; to transfer to such board certain of the powers of the Corporation and of the Main Drainage Committee, and for other purposes." The Corporation of Dublin are, of course, looking daggers at the impudent measure and its promoters; and the "wise and prudent men" of the Town Council are determined to vote the public funds for "a spirited and glorious opposition." The good words of the Lord Lieutenant will be made the most of; but there are judges in the land and personages in the city who will be heard, and the story of the Civic Main Drainage will be well ventilated.

## TO CORRESPONDENTS.

OPEN SPACES IN OLDEN DUBLIN.—There were several open spaces two or three centuries back in Dublin, which have since been enclosed and built upon, and in each case a clear public right has been filched from the citizens. We might instance the case of Hoggin-green (represented in part by the present College-green, Oxmantown-green, St. Stephen's-green, and others. Outside the city there were several other greens or open spaces, such as Harold's Cross-green, a remnant only of which exists. Had we a vigilant Corporation, the history of these enclosures and encroachments would be investigated, and some benefit exacted from their loss. In view of the future growth of our city, we will need many open spaces, and the wants of the city demand that our present public squares should be freely opened to the entire community without further delay.

TOLKA.—There would be no engineering difficulty in the way of diverting the course of this river, or providing otherwise for its outfall, in case of the reclamation of the foreshores of Clontarf.

A GAS CONSUMER.—A public meter at certain defined distances, and an independent examination in the interest of the citizens.

SANITAS.—He is the servant of the public as well as of the board, and his duty to the former in the case in point should override the latter.

BROADSTONE.—From Eccles-street to the canal bridge or further was formerly known as Drumcondra-lane, indeed we believe the whole of Dorset-street was at one period known as Drumcondra-lane. The celebrated "Rose Tavern" existed in this lane, and was famous for meetings of the "Florists' Club," founded by the Huguenots in conjunction with some of our citizens. Premiums were adjudged here to the members who produced the most beautiful flowers. The club existed till the close of the reign of George II.

AN APPRENTICE.—Try a cardboard model, but first lay down the lines correctly.

J. S.—Mr. Francis Nolan, Meredyth-place, is the Dublin agent. See our advertising columns.

CISTERCIAN ARCHITECTURE.—A correspondent will find sufficient details for his purpose in the work of Mr. Edmund Sharpe, and in the two volumes published by Mr. R. H. Brash, and Mr. J. J. Phillips. The monograph of Grey Abbey, County Down, has a series of measured drawings, with examples of buildings outside this country. The chapter on "The Cistercian Order and their Churches" in this country in Mr. Brash's work is well worthy of perusal.

R. H. A.—Perhaps on calmer reflection the gentleman may see the matter in another light. Every honest man will naturally protect his interests. "Fair play is bonny play" says the old adage, but it is hardly fair that complaints should be paid at our expense in a quarter where no reciprocal feeling has been manifested. We have always evidenced a feeling to oblige every member of our constituency in an honourable way.

K. (London).—The paper sent was mislaid, but the matter you will see has not been entirely lost sight of.

J. N. G. (Ballinrobe).—Thanks.

J. F. (Over Darwen).—Order to hand. Thanks for kind wishes as to the success of our Journal. Glad to hear our hints were beneficial in your case during the recent visitation in your town.

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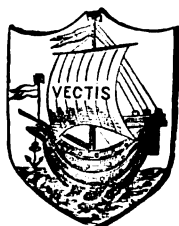
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# The Irish Builder.

VOL. XVII.—No. 362.

*Architectural Dilettanteism—Literary and Practical.*



HERE is a professional as well as an unprofessional dilettanteism in connection with Architecture; and there are numbers of our young and middle-aged architects who, whenever they take up a pen or use their tongue (which some of them very often do) in architectural societies or kindred ones, invariably treat us to eloquent sentiments on the harmony of the spheres or on the Orders. Now, we are getting heartily tired of this kind of treatment of Architecture, as a branch of the fine arts. Half a century ago it was not, perhaps, out of place, because the reading of architectural papers was somewhat novel; but we tremble at the magnitude of published and unpublished architectural MSS. of the dilettante school at present in existence. Mere literary lectures on Architecture may be pleasing, and doubtless they interest certain classes of amateurs and would-be lovers of, or patronisers of, the art; but let it be remembered that Architecture is no new, but a very old art, and that every ancient and modern building standing is an illustration or model of a good or bad example of the art.

Architects or intended architects must be taught, and by teaching and practice they acquire the rudiments of their art as others learn theirs. Architects, painters, sculptors, and artificers learn to draw, as some of them learn to practically work with their hands, by the examples placed before them. It were to be desired that they would remember these facts when they become public lecturers, or read papers at our institutes or associations.

To convey instruction to the younger members of a profession, something better than a long talk and a tall talk is requisite. An architectural excursion to some good public building in course of erection or completion, under the leadership of an architect who had thoroughly mastered his profession, and who would and could demonstrate the principles of his art, architectural and constructional, in the presence of its embodiment—such a man and such a lecture would be valuable. We have not, unfortunately, many of such a class of men in our midst, yet we have some; and Architecture as an art will shew a decided improvement when the number of such men increases. Lectures or papers on Architecture requiring the use of the black-board, or enlarged diagrams of working drawings, sectional views, the development of surfaces in stone-cutting, groining, or vaulting, &c.—such lectures or papers we would like to see more often, to the displacement of the mere literary lectures.

It is excusable for the president of an institute or an association to deliver a literary lecture when giving his inaugural address. He is supposed to take a review of the past, and glance at the tendencies of the future of Architecture, besides touching upon many

collateral points. An inaugural address, therefore, cannot be a strictly technical or illustrative one of the kind we have alluded to.

During the last few years some interesting papers have been read in the Institute of Architects in this city, and during the last two sessions some useful papers have been read in the Architectural Association; but, in respect to the former, all but a few, and in respect to the latter, all but one or two, have been mere literary lectures, which might have been delivered quite as well by a "lover of arts" unconnected with the architectural profession. Some of them have been brimful of sentiment and common-place advice; but metaphor and rounded periods, à la Ruskin, in the absence of the elements constructional in Architecture, explained and demonstrated by drawings or models, is of little essential service for inculcating a knowledge of the art to the younger members of the profession.

We shall make no invidious comparisons, or point out men by name who have turned, and are turning over a new leaf in architectural instruction; neither shall we point to the prominent few or the shallow many who seem incapable of composing a practical paper, or of speaking extempore for one quarter of an hour in an intelligent manner in illustration of any part of their art.

Besides a visit to good public or domestic buildings in course of erection, some of our best workshops in connection with building wants should be occasionally visited—joiners' workshops, foundries, tile and terra-cotta manufactories, and all those connected with the manufacture of sanitary appliances, or ornamental and decorative furnishings and fittings. It would not be at all derogatory to the dignity of the profession, but a commendable action for a few members or sections of an architectural association to visit workshops, under intelligent and judicious guidance, and view different branches of work in progress. Foremen, managers, and superintendents might be usefully "interviewed," to use an Americanism; and from the lips of a practical and experienced foreman the leader or guide of an architectural section might elicit much valuable information, and processes and methods of workmanship and manufacture might be seen that would afford a good and useful side-knowledge, to be afterwards availed of in course of practice.

The exclusive spirit in architectural practice has been carried a great deal too far. While protecting the profession against all unjust encroachments, and lifting it up to a higher standard in respectability, there is no necessity, at the same time, for architects to shrink from contact with workmen or others whose advice and assistance are essential. The medical man visits poor and rich without distinction, and his public or self-respect is not lessened by his contact with, or his visits to, the poorest human being in the vilest rookery or fever-den in the city. The legal practitioner will plead the cause of best or vilest alike. The clergyman will visit and comfort the just man or the sinner alike, and none of either of the above will suffer one jot by their contact with those below, beneath, or outside them in the social scale. There may be no strict analogy in the cases we adduce, but there are sufficient points for consideration, comparison, and application.

One of our oldest and best architectural contemporaries quite recently touched upon some of the points that relate to our subject, and as far as its remarks go, we endorse them. Our contemporary spoke more particularly on the question as it relates to architectural bodies in London, though what it said was equally applicable to architectural essays in this country.

Having for upwards of sixteen years represented the architectural and cognate interests in this country in an independent manner, we are determined to point out in future the faults as well as the merits of the profession. Without dictating an architectural opinion, we will dare to lead one, while still holding ourselves amenable to the public will. We care not for petty obstacles or jealousies, cross-purposes, or wire-pulling. Architectural enemy as well as architectural friend will get strict justice at our hands in his character of a professional man. Apart from this, however, while we will treat with tenderness the juvenile, still the juvenile must merit praise and work honestly for it, if he expects to get it.

It is a mistaken policy for a public journal, more particularly a professional and representative one, to allow itself to become the medium of follies and fallacies of its order, or to become the willing advocate or exponent of shadows which have no substantial embodiment. We have lifted the veil lightly to-day from off the face of some of the defects and abuses of the profession; and, as the year advances, we will be prepared to cut some cancers out boldly with the knife, if they cannot be removed by any less severe treatment.

## ALL SAINTS', EGLANTINE, HILLSBOROUGH, COUNTY DOWN.

THIS little church, with seat accommodation for about 250 persons, is a memorial of the late Mr. St. Clair Kilburne Mulholland, and his son bearing the same name, in course of erection by their immediate relatives. As the building is situated within their demesne of Eglantine, and will be a prominent feature in a pleasing rural landscape, viewed from the windows of the mansion, the architect has endeavoured to make it simple rather than imposing, and quietly picturesque.

The materials will be local greenish stone for walling, with Dungannon stone dressings. The interior will be somewhat more ornate, the nave being divided from the side aisle by an arcade of five bays, the piers having circular cylindrical and clustered shafts, each pier differing. The chancel arch is of two orders, with marble banded shafts and sculptured capitals. The open-timbered roof of the nave is a hammer-beam one, and that of the chancel is in section waggon-headed and cusped. Wall lining of encaustic tiles, stained glass, and a general rich but unpretentious treatment of the whole interior with its accessories and furniture, is contemplated.

The contract for the shell of the building is taken by Messrs. Lowry and Son, of Belfast, for about £2,000. The style is English in type, of the vigorous Transitional period. The work has been carefully designed throughout by an old and attached friend of the two gentlemen whom it is to commemorate.



## THE O'CONNELL MONUMENT.

THERE is a report that the O'Connell Monument will be the subject of a law-suit before long—the O'Connell Committee *versus* Mr. Foley's Executors. Verily, has it really come to this? Must the Centenary celebration be a sham, and the conduit of shame. We have had scandals enough in this city, and we must say there has scarcely been a project with which the Corporation of Dublin was connected that has been fortunate in its results. We say now, as we have said long since, had the committee during Mr. Foley's lifetime exercised due prudence and activity, the monument would have long since been finished. There appears now little chance of seeing a complete statue by August next. The subscribers' money stands the chance of not only being wasted in seeking counsel's opinion, but probably further wasted in vexatious litigation. Just like the Corporation of Dublin; but why should the O'Connell Committee have ever been a part and parcel of our town council, with members and paid officers of the latter the guiding, or rather the misguiding, leaders and lights of the former?

## THE RECLAMATION OF LOUGH NEAGH.

AT the meeting of the Royal Geological Society, on Wednesday evening, it was asked, "How much of Lough Neagh could be reclaimed?" when it was stated, "about one-half;" and to a further question—"Why not then do it?" Mr. Kinahan replied—"Why not reclaim the sloba and sands near the North and South Bulls in our Bay?" An estate larger than Sir Richard Wallace's could be reclaimed from the southern half of Lough Neagh, which would make the richest land from the quantity of alluvial deposit brought down by the Blackwater and the Upper Bann, while over 3,000 acres of tidal lands could be improved on the banks of the Liffey. Lough Neagh could be drained by the Lower Bann, the valley of the Lagan, or the valley of the Newry Water. Such works undertaken by the State, and when reclaimed, sold in lots, as the Netherlands has done, would be reproductive and paying, employing and keeping the people at home.

## THE BALFE MEMORIAL.

AT a meeting of this committee at the Mansion House, the annexed letter was read from Mr. Dion Boucicault:—

"Manhattan Club, New York.

"MY DEAR MACDONNELL—I have your letter of the 8th ult., with its enclosure. If I may be allowed to criticise, I think the limitation of the subscription to £1 unwise. It is too close a date to say that subscriptions should only be received up to March. I think I could get a round subscription from Australia if I had time, but I will give you £50. I have no doubt I could collect £500 if you will let me have my own way; in fact, give me my head. I shall be in Dublin in April, '76, and I hope to see the statue up by that time. I think a fountain like the fountain Moliere in the Rue de Richelieu, is a good idea."

MRS. MacDonnell gave notice of his intention to move at next meeting a resolution to the effect, that the committee approved of separate organisations, which had for their object the promotion of the Balfé Memorial; that, to avoid all appearance of conflict with any other organisation, the committee do adjourn for two months, and that the date for receiving subscriptions should be extended.

MRS. John O'Duffy also gave notice of a motion, rescinding the resolution of the 11th of March, which declared that the primary object of the committee was the establishment of a bust or scholarship, and that the committee should make every effort towards the erection of a public statue, in deference to public opinion, and, if the fund permitted,

to found a yearly prize or scholarship of music.

SIR Richard Graves MacDonnell intimated that he would move, at the next meeting, that the rule fixing the subscriptions at £1 should be rescinded.

It was resolved to convene a special meeting of the committee for the 22nd instant, for the discussion of these propositions, and the Lord Mayor intimated that, in anticipation of a large meeting, he would place the Oak Room at their disposal.

The names of Mr. A. M. Sullivan, M.P.; Mr. W. L. Hackett, Mr. A. Lesage, Professor Glover, and Mr. Barry Sullivan (who wrote to Mr. Levey, enclosing a subscription of two guineas), were added to the committee.

We understand that a Ladies' Committee is being formed for the purpose of assisting in raising funds for a statue in this city to our Irish composer. Their place of meeting is at 5 Gardiner's-row, Rutland-square.

## CIVIC LYRICS.—No. LXXVII.

## QUERIES.

Who made our affects all spick and span,  
A pleasure to behold?  
Oh! let us see that wondrous man,  
Or body wise and bold!

Who made our town a model town,  
A pleasure to walk through?  
Oh! let who did it wear a crown  
Exposed to public view!

Who made our river pure and bright—  
A water fit to drink?  
Whoever did so, gave delight  
To all who feel and think!

Who made our taxes light to bear?  
Proclaim aloud, and tell  
The good news, that all may declare  
The news is not a sell!

Whoever did not do one-half  
The good that's in my verse,  
Oh! let us write their epitaph  
And follow quick their hearse!

"Ashes to ashes, dust to dust,"  
Their death will be no hurt;  
From off the town we'll spare, and must,  
The loss of tons of dirt!

CIVIS.

## WHAT IS THE EARTH'S ORBIT?

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I would deem it a great favour, if you or some of your scientific correspondents or readers would inform me what is the number of miles that our planet travels in one year; in other words, what is the earth's orbit? It seems incredible the rate at which we are *whirling* through space.

GEO.

[To the above schoolboy query we can only give a schoolboy answer, as we are not adepts in astronomy, and know but little more of the science than what we learned at school. The earth performs its annual revolution in little more than 365½ days. Its diurnal revolution is said to be effected in 23 hours, 56 minutes, and 3 seconds. Its orbit round the sun is elliptic, nearly approaching a circle. The earth moves through space at the rate of 19 miles a second, and travels over a distance of 1,641,600 miles per day, or nearly 600,000,000 miles in the course of the year. This is indeed prodigious "whirling." Whether the observations made of the late transit of Venus across the sun's disc will afford us any further practical information about the earth's distance from the sun, or ament the position or prospects of the sun itself, remains to be seen. Perhaps some of the members of our learned bodies in the city will inform our correspondent further. In the last century some celebrity proved the

sun to be a body of ice. Mr. Hampden, at the present hour, asserts it to be a flat affair, and has found a number of "flats" to believe him.]

## THE HEALTH OF DUBLIN.

FROM the Registrar-General's report for the week ending 9th inst., we find that the deaths registered represent an annual mortality of 46 per 1,000 of the population, by the census of 1871. From zymotic diseases, 42; 14 children died from convulsions; 64 by bronchitis; 14 by heart disease; 21 from phthisis. The deaths from diseases of respiratory organs amounted to 109—68 were under 5 years, and 84 were over 60, including two women whose ages were stated to be 96 and 99 years.

## TECHNICAL EDUCATION AND IRISH MANUFACTURE.

IN a lecture on the cultivation of beetroot, and in allusion to the failure of the beetroot sugar manufacture carried on at Mountmellick a few years ago, Professor Sullivan attributed the failure of it and other enterprise in this kingdom to the want of practical education. He said, "What is the cause of this backward state? The want of education. I do not mean reading and writing, for we are not so backward in that, but of the practical technical education which has enabled the Continental nations to make such great strides in the last fifty years. Who of our middle classes in town or country thinks of giving his sons a real education, unless he intends to make a doctor, a lawyer, or a clergyman of him; and yet it requires as much knowledge, though of a different kind, to work effectively a large farm, a brewery, a distillery, a cloth factory, a tannery, or, in fact, to carry on any branch of modern industry. They get a slight smattering of Latin, soon forgotten; of French, which scarcely enables them to ask their way in a foreign town; but of modern sciences, of mechanics, physics, and chemistry, which would prepare them for work, nothing. In France, Belgium, and Germany the management of factories of all kinds is a profession as much as law or medicine. I may be told that, if we had the manufacture, there would be a field for young men, and it would then be worth their while to get educated for it, as they do for Medicine, the Bar, and the Church. But why have we not the manufacture? The capital exists; we lend millions to English traders. The men are there, but they are not educated enough to know how to embark capital in an enterprise with safety—to take a part in the direction or management. Napoleon, when he wished to create an indigenous sugar manufacture, began by creating sugar schools. Germany, when it wished to create manufacture, began by schools. I have mentioned this formidable, but, happily, not insuperable objection to the introduction of the beet-sugar industry into Ireland—an objection not before put forward—not for the purpose of retarding so desirable an event, but to suggest caution and due consideration, and by exposing our inexperience and want of knowledge, to prevent another hasty and bungling experiment being tried, which might postpone for another generation the establishment of this desirable industry."

NEWSPAPER PROPERTY. — *Saunders's News-Letter*, one of the oldest daily newspapers in Dublin, was put up for public sale since our last issue, but no offer was made for the purchase, either in respect to the copyright, or for the stock, plant, or machinery. It is still carried on by the proprietors, who are ready to entertain any private negotiation for its purchase. Some years ago it was one of the best newspaper estates in this city, and, if the truth would be known, it is still a better property than some other of our daily journals.



## OBITUARY NOTICES.

## SAMUEL ROBERTS, BUILDER.

In the death of Mr. Samuel Roberts, the building trade of Dublin loses one of its oldest members. As an established builder, the deceased was upwards of half a century in the trade. One of his earliest premises was in South Richmond-street, where as "Carpenter and Builder" he was known as a young practitioner of considerable promise and industry. As years grew and contracts increased, Mr. Roberts obtained and maintained the reputation of doing conscientious work. During the last forty years he carried through extensive building contracts in Dublin and the provinces, and more particularly since his removal to the Appian Way, off the Donnybrook-road, where between twenty and thirty years ago he erected a residence and extensive workshops. The neighbourhood of the Appian Way is greatly changed in appearance since Mr. Roberts first settled down there; and Donnybrook-road, which had but few houses at the city end, is now almost completely built upon. The deceased was a good employer, and very particular as to the class of hands he employed. He hated drunkenness, and was a determined enemy to it and smoking, and was often known to discharge workmen whom he found, when at their work, indulging in the latter practice. Many anecdotes could be related of his good qualities and peculiarities of character. He might be truly said to be a representative of the good old school of Dublin builders who would not turn out bad work to save expense, but would rather suffer a loss than that the work should not be properly performed. Mr. Roberts was of the Quaker persuasion, and hale, healthy, and active in his duties, and for a number of years never ceased to continually visit and inspect all the works of his in progress in town and country. In stature he was rather under size, and in garb and personal appearance and quick step he riveted the attention of many. He invariably for many years wore a white beaver, rather inclining to brown, and many were the queries put from friend to friend whose path he crossed while on his daily business rounds, "Who is that little gentleman in the white hat." There is a lesson to be learned by all young builders from the life of the late Samuel Roberts; may they evidence the same industry and honesty in doing good building work like him, and die respected and regretted. The deceased died on the 3rd inst., at his late residence, 1 Appian Way, in his 75th year, and his remains were interred at the Friends' Cemetery, Temple Hill, Blackrock.

PHILIP DIXON HARDY, AUTHOR, PRINTER, PUBLISHER, AND BOOKSELLER.

Mr. Philip Dixon Hardy, who expired at the age of 81, at his residence, 2 Frankfort-place, Upper Rathmines, on the first day of this year, was, probably, the oldest representative of the printing and publishing trade of Dublin. His name is connected with the early efforts made in this city to establish and carry on a cheap periodical publication. Some time previous to 1830, Mr. Hardy was an established printer at 8 Cecilia-street, having a private residence at 87 Stephen's-green, North, where he continued to live for several years, and afterwards at Richmond-place, North, near the O'Connell Schools.

About 1830-1, he printed and published some literary ventures, among which were the *National Magazine*, a monthly periodical, in which some of Carleton's and other of our novelists' and poets' first productions appeared. After the publication of the first, and a few numbers of the second, volumes of the original *Dublin Penny Journal*, by John S. Folds, Bachelors'-walk, the periodical passed into the hands of Mr. Hardy, and was conducted by him till its cessation in 1836. Four volumes were all that appeared when that most useful and now valuable publication ceased to exist. The volumes of the *Dublin Penny Journal*

are now getting very scarce, and are eagerly bought up by antiquarians and archaeological writers, and annual visitors to this country. These volumes are a storehouse of antiquarian and legendary lore connected with our old castles and abbeys, of which they contain numerous illustrations.

After carrying on business for several years in Cecilia-street, Mr. Hardy removed to large premises in Upper Sackville-street, between the Gresham Hotel and Gregg's-lane. Here he carried on the publishing as well as the bookselling trade for some years, in connection with his son, under the title of "Philip Dixon Hardy and Son." He, however, retired from the trade here upwards of fifteen years ago. Mr. Hardy was the author of various works of religious bearing, apart from his contributions to the publications which he conducted or issued. We are not aware of any large or exhaustive volume bearing his name. He was a man of active business habits, small in stature, strong, and sometimes extreme in religious views, mixed but little in politics, but for some years took much interest in the success of religious societies and similar organisations.

Though for long years connected with the printing trade, we are unable to say, as we write, whether Mr. Hardy was himself originally a printer or not. In the Dublin Directory, of 1818, the name of "Philip Dixon Hardy, wine merchant, 20 Great Longford-street," appears, but whether it is that of the deceased or of his father, we cannot say. Our subject could be only in his 24th or 25th year at that date. This apart, the career and engagements of the late Philip Dixon Hardy entitle him to more than a mere passing notice, and we may be enabled at a future opportunity, of doing justice to the memory and merits of the versatile octogenarian who has just passed from our midst.

### THE ARCHITECTURAL ASSOCIATION. PRIZES IN CLASS OF DESIGN.

The following is the report on the sketches submitted by the members of the Class of Design:—

"Having carefully examined these designs, we have decided upon awarding the first place to Mr. Robert Browne, for the great number of his drawings, and the thought and originality displayed in them. We award the second place to Mr. T. H. Longfield, principally on account of his beautiful design for a rose window in the Italian-Gothic style. It affords us much pleasure to be enabled to bear testimony to the general excellence of the designs submitted. They afford very gratifying evidence of the talent and industry of the members of the class, and warrant us in anticipating a still higher degree of excellence in the work of the present session."

"W. M. MITCHELL,  
"T. DREW."

The treasurer of the Association was authorised to hand Mr. Browne 2½ guineas as prize for his sketches.

### PROGRESS IN BELFAST.

In a recent issue of the local *News-letter* there appeared an article descriptive of some new buildings in progress, from which we glean a few particulars:—

"Day after day the old landmarks are disappearing, and palatial piles, which attract the notice and admiration of all, rise from their ruins. This is a remarkable feature in our town's growth, and one that attests the solidity of its prosperity, as well as the cultivation of the finer arts in our midst. The character of the buildings will give a visitor a pretty accurate conception of the taste and culture of the people of any community. Architectural display is a conspicuous outcome of art education; and, in Belfast, "those who run may read" of the diffusion of its best principles, and the impress it has made on the public sentiment. We have frequently to record the completion of new structures which would be a credit to any city in the

empire, and there appears to be a good catalogue of occasions for the repeated discharge of the same duty in the future. The town extends with great rapidity, and offices and warehouses areousting everywhere within a considerable radius of the central portions the domesticated citizen, whose interests must succumb to the necessities of enlarging business and manufacturing enterprise. Among the many instances of this, we would more particularly allude to the

### NEW BUILDING IN DONEGALL-SQUARE,

in the course of erection for the firm of which Mr. John Preston is the head. It has risen in what may truthfully be termed the linen district of the town. It forms the angle of Donegall-square and Adelaide-place, is five storeys high, measuring some 60 ft. The front portion in the square is intended for the linen warehouse proper, and the rear portion for flax stores. There is a frontage in Donegall-square of 80 ft., in Adelaide-place of 186 ft., and in Adelaide-lane, which runs parallel with the square and at right angles to Adelaide-place, the frontage is 104 ft. The building is designed in the Italian style of architecture, and is singularly graceful in its outline. The walls are of red and white Scotch freestone. The architect is Mr. Lanyon, and the contractor Mr. J. Henry.

### IMPROVEMENTS IN NORTH-STREET.

An improvement of the right kind, and one long desired, has been commenced in North-street. Mr. M'Ginness having become possessed of the house No. 8, resolved to reconstruct it on a more commodious principle. By an arrangement with the town council, who purpose having the entire street widened in the course of time, he had the frontage of his new establishment set back some 8½ ft. This will be a considerable advantage in a street admittedly much too narrow for the immense traffic which daily flows through it. The adjoining premises, which are owned by the Belfast Banking Company, and which now form a jutting-out corner, will also be taken down and rebuilt on the same line as Mr. M'Ginness's. The present new building contains a large shop and house, with extensive store in rear, reached by a gateway from the street. The erection is four and a-half storeys high, and presents quite a handsome ornamental appearance. The front elevation is composed of red Dundonald freestone, the cornices and window-dressings being of Dungannon stone—red and white. The massive plinths and shop window cills are of polished Newry granite. The style of architecture is Italian, treated lightly and elegantly. Wrought and polished Dungannon stone pilasters and columns with carved capitals support arched window-heads, having key-stones with carved enrichments, the latter supporting a bold moulded string-course at height of each storey. The main cornice at eave is supported by moulded dentils, and is to be surmounted by a stone parapet and gable, having a triple-light window with carved finial on apex. Mr. Alexander M'Alister, Chichester-street, is the architect; Messrs. P. and M. Nolan, of Great Victoria-street, contractors.

### LOMBARD-STREET.

Active operations have recently been commenced in Lombard-street, adjoining the Scottish Widows' Fund Insurance building, for the erection of premises for the English and Scottish Law Life Assurance Association, to cover a frontage of 82 ft., and to be constructed so as to form a single design conjointly with shops and offices for Messrs. Johns, Hewitt, and Johns, which will have a frontage of 40 ft. The ground floor will consist of two large shops, and will be constructed entirely of finely-chiselled grey Dalbeattie granite. The upper floors will be occupied as solicitors' and insurance agents' offices. The whole of the building will be fireproof, the floors being formed of rolled-iron girders and joists filled in with concrete. The architects are Messrs. Thomas Jackson and Son, Corn-market; and the contractor is Mr. William M'Cammond, Antrim-road.

## CORRESPONDENCE.

## CONDENSED PEAT FUEL.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—A mine of wealth lies in store for Ireland in the fabrication, when judiciously realised, of condensed peat fuel. It requires, when made, to be made cheaply, or not at all. I am myself convinced that the thing may be done, but practice alone can supply the test. We first, I submit, require a cheap excavator worked by wind or steam, the turf to be then raised on an endless tissue or by means of wheels with floats, then precipitated on projecting iron stabs so arranged as to insure effective disintegration. The disintegrated peat should be shot into pervious trays, placed in drying rooms, and, when dry, compressed between rollers to the desired extent. Automatic machinery might be constructed, as I believe, so as cheaply to compass these results. The drying rooms could be heated by a turf furnace, the fire at one end, a tall chimney insuring draught at the other, the products of combustion otherwise (due precautions being followed) allowed to escape amid the drying turf. Moist turf is more or less available as fuel in close furnaces.

HENRY MACCORMAC, M.D.

Belfast, 4th Jan., 1875.

## RECLAMATION OF FORESHORES.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Observing that in your journal you have been placing before your readers the importance of the reclaiming of the foreshores, allow me space for a few remarks on the subject, which I shall combine with the utilisation of the sewage of large towns, as I consider they ought to go hand-in-hand, and are certainly amongst the most important public questions of the day, bearing on the general prosperity of the country, affecting its sanitary, commercial, and agricultural interests; and from the benefit which would result from their being properly carried out, the country might shortly become self-supporting, having all the elements within itself for that purpose, if properly and fully taken advantage of. Admitting, therefore, that these are national questions, every member of parliament ought to be pledged to support the immediate reclamation of all tidal and slob lands, as, since the passing of the Foreshores Act of 1866, the duty of reclaiming all such devolves upon government, excepting those proprietors holding special charters, who, at the same time, ought to be called upon to operate on their privilege, or hand it over again to government for that purpose, in order that the nation may have the full benefit of all its resources; also, every city corporation ought to be urged to direct their attention to the proper disposal of the sewage discharged from the drains, that the health of the inhabitants may not be injuriously affected thereby, and all matter available for manurial purposes should be collected, in order that it might be restored to the soil, instead of running as at present to waste, besides polluting the rivers and generating disease, thereby being a loss instead of a profit to the country at large; whereas, if proper measures were adopted, together with the aids which chemistry has now placed in our hands, it might easily as well as profitably be manufactured into a portable manure, and thereby save an immense amount of money from being sent out of the country for foreign fertilizers, besides be a great addition to our native industry as well as a sanitary measure calculated to benefit the health of the population.

Various attempts have been made both in London and Edinburgh to manufacture the sewage into a portable manure, which has not met with the success expected; but this has arisen from the principle upon which the common sewers are constructed, and not on the chemical treatment applied. The evil seems to proceed from the large quantity of water discharged along with the manurial

matter, especially during wet weather; this might easily be overcome by having a double set of sewers—the one to convey the clean water which falls from the heavens upon the houses and streets, and might be made to run into those at present in use—and another section be constructed of glazed materials, into which the deposits from water-closets and only offensive matters hurtful to health, while at the same time useful for manufacturing into manure be admitted, the discharge of which should be at a point where a manufactory could be established for its proper manufacture into a portable form suitable for applying to the soil. This principle has been successfully carried out by Mr. William Menzies, Deputy-Surveyor of the Woods and Forests, Windsor, who has applied it to the town and castle there, as well as at Wellington College and several other large institutions which are under his supervision, and I have no doubt that, if the same principle was applied to large cities it would be equally successful. It is admitted on all hands that it is high time something was done to prevent the sewage of cities entering open rivers in the manner it is doing at present, particularly such as are under the influence of the tide; the matter discharged is bad enough when it enters the river, but its deadly effects on the health of the neighbourhood are aggravated tenfold from being carried up and down by the flow and ebb of the tides, and I think it is reasonable to suppose that a very great deal of fever and diphtheria is propagated thereby.

It has of late been strongly advocated by some to adopt the dry-earth closet system, which, where practicable, is no doubt the best way of disinfecting, but can only be made available for small holdings, owing to the amount of labour necessary for working it; so that for large cities, the water-closet system is in all respects the best, as there is no carriage so cheap as water, which is also a good enough disinfectant for all the time required, but there ought only to be as much used as to convey it to its outlet, and the profit of manufacture might be secured by that same water being only such as would be of some use for making manure, which is quite practicable in the system I have referred to as being in operation at Windsor and elsewhere, which is well worth the attention of town councillors and all interested in the purification of rivers.

Situated as your city is, at the mouth of a tidal river opening into a bay of the sea, I know no place better adapted for immediate benefit in all respects from reclamation, as whatever land was added along the wharfs or city boundaries could at once be made to yield a good return for the money expended in the way of wet-dock accommodation, or for building warehouses in connection with the trade of the harbour, also by covering up the slob to low-water mark by buildings, where available, and the remainder in arable land for growing crops, it would materially add to the health of the city, as slob, like a sponge, imbibes the sewage matter brought from the town drains, and gives it off again in poisonous gases during the exposure to the sun's rays when laid bare by the ebb tide.

With regard to the reclamation of the tidal wastes along our rivers, together with the foreshores, which are at present coated deeply with mud, every effort ought to be made to utilise the same as speedily as possible, as, owing to the great rise which has taken place within the last seven years in the price of labour, a considerable extent of land has been thrown out of cultivation, and turned into pasturage, which is still going on increasing, particularly on strong soils and such as are not favourably situated for market and climate, as the expense of labouring such exceeds its productive powers to yield a profit for the capital expended thereon, and unless counteracted—which I think can best be done by using the means I am advocating—must very soon tell against the prosperity of the country. Seeing that laying down to grass reduces the employ-

ment of the population—which in its train must bring stagnation of trade and manufacture,—we have therefore in this a good reason for directing the attention of our legislature to such an important subject, as by reclaiming the alluvial deposits of mud along our tidal rivers—which have long been rendered fertile through the impregnation of sewage matter flowing for ages from towns situated along their banks, together with vegetable and animal matter produced from decayed sea weed, shells, &c.—we would make up the deficiency and gain advantage in many ways, such as having the richest of land added permanently to our acreage, rendered still more valuable by possessing naturally the very best climate the country can produce, owing to its proximity to the sea, being therefore at once suitable for growing all kinds of grain and green crops, thereby also encouraging native industry and saving importation of grain from foreign countries. The amount of wastes of this class available for reclamation along the rivers of Great Britain and Ireland is something enormous—in your country perhaps most on the banks of the Shannon; here upon the River Forth, where the deposit of mud is very deep and rich, from sewage matter flowing from numerous towns as well as the drainage from the Ochil Hills, which is very extensive, and, being constantly covered with sheep, large accumulations of fertilising matter are continually flowing into its bed. A very small portion of this river has as yet been reclaimed; but if it was gone into thoroughly, it is calculated that on a distance of twelve miles, embracing both sides of the river, 10,000 acres are at present available.

What a field of enterprise here alone, giving one an idea of the vast resources which, after being reclaimed by government, ought to be sold to practical men, binding them to make it arable, so that its capabilities would be developed for the national good! Also, what a source of income is lying dormant, when we consider that the average yearly produce of this class of land is worth upwards of £10 per acre, independent of the minerals, which are very abundant, being full of iron and coal.

Another benefit to be derived from the embanking of rivers is, that the navigation is improved thereby, as by narrowing the boundary the channel is deepened; besides, the mud which is now depositing itself where already there is too much, would by that process be carried further down, and cover the sandy wastes at present not worth reclaiming; so that if the best means were now used which the science and engineering skill of the day can command, they would at some future period also become profitable to reclaim. Let us hope, therefore, that no more time will be lost in adding to the acreage of the country all that is at present available, seeing that the sooner such a desirable object is carried out the more profitable in every respect will be the result.

CHAS. RINTOUL.

Kingston Farm, North Berwick,  
7th January, 1875.

## THE ROYAL IRISH ACADEMY.

A GENERAL meeting of the Academy was held at their house, 19 Dawson-street, on Monday evening.

Dr. STOKES, President, in the chair.

The Secretary, Dr. E. P. Wright, on behalf of John Rhys, Esq., of Rhyl, read a paper on Ogham Inscriptions, in the course of which Mr. Rhys said he conjectured that some, perhaps most, of the British Oghams are of the fifth and sixth century, and if Dr. Ferguson's recent examination of the Loughor altar should prove confirmatory of his (Mr. Rhys') guessings of the inscriptions on it, they might say that they had at least one instance dating before the departure of the Romans from Britain. One or two of the Oghams might possibly have been cut in the eighth or ninth century; they are on the

Llanarth or Caldys Island stones. As to Irish Oghams, he would regard those written like the British as older than those which are to be read inversely or contain abbreviations and intentional puzzles. While maintaining that the names in Irish inscriptions are real names, he did not for a moment wish to conceal the fact that some of them are highly enigmatic, but some of this description will turn out to be bad readings perhaps. The origin of Ogham writing is still hidden in darkness. Did the West Britons borrow the germ of the system from Rune-writing nations, or *vice versa*? or were they to regard Runes and Oghams as of independent growth? These were questions which still remained to be solved, and the cryptic tunes of Scandinavian nations seem to be too late to assist us in answering them, though they betray a great similarity of principle.

Dr. E. W. Davy read a paper on "Some Newly Observed Properties possessed by certain Salts of Fulminic Acid."

The Secretary, (for Dr. Doberck) read a paper on "The Orbit of Comet 1, 1845."

The Secretary announced a number of donations of books; also a chalice of silver, fragments of a cup of white metal, and four brooches of silver gilt, all found in September, 1868, in the Fort of Reerasta, near the village of Ardagh, county Limerick, and deposited in the Museum of the Academy, by Mr. W. L. Joynt, Crown Solicitor to the Treasury, on the part of her Majesty's Government.

The thanks of the Academy were voted to the donors.

The following were elected as members:—Robert Atkinson, LL.D.; W. J. Fitzpatrick, LL.D.; Edward Hamilton, M.D.; Arthur Hill, Cork; John G. MacCarthy, M.P., Cork; J. J. O'Callaghan; George H. Porter, M.D.; Emerson Reynolds, M.D.

#### ADDRESS AND PRESENTATION TO ROBERT COCHRANE, ESQ., C.E.

On Wednesday, 6th inst., a number of Mr. Cochrane's friends assembled at the Downshire Arms Hotel, Banbridge, for the purpose of congratulating him upon his recent appointment to an important position under the Board of Public Works, and to present him with a farewell address on severing his connection with the County Down. Robert McClelland, Esq., J.P., Chairman of Town Commissioners, occupied the chair. The chairman said—"I have much pleasure in presiding at this meeting, at your request, and to be the medium of conveying to our respected townsman and worthy officer, Mr. Cochrane, our feeling of regret at losing one who has made many friends, and endeared himself to all who had the pleasure of his acquaintance. As a public officer in connection with the town commissioners, I have much pleasure in bearing testimony to his efficiency and usefulness in the improvement of the town. It is, however, a matter of satisfaction for us to know that our loss will be his gain; that by his abilities and business habits he has obtained a higher and much more lucrative position than he held here. His talents could not be hid, and have not been unobserved, and are now to be transferred to a more extensive field of usefulness. I am sure all here will join me in wishing him success and prosperity." The chairman then read the address to Mr. Cochrane, and presented to him, on behalf of the subscribers, a handsome gold watch and chain, with suitable appendages. Before the proceedings terminated, a cordial vote of thanks was conveyed to the chairman for his kindness in presiding; and, in response, Mr. McClelland expressed the gratification he felt at taking part in any meeting that had for its object the advancement of Banbridge, or the honouring of its townspeople. In addition to the Town Surveyorship of Banbridge, Mr. Cochrane held a similar appointment for Dromore, and also that of Assistant County

Surveyor for the Banbridge district in county Down, and acted as engineer and surveyor for the extensive county Down estates of the Earl of Clanwilliam, and the Trustees of the late General Meade. He commenced his professional career under Henry Smyth, Esq., C.E., Fellow of the Royal Institute of the Architects of Ireland, of Downpatrick, and studied at Queen's College, Belfast. His recent appointment was the result of an open competitive examination, conducted by the Civil Service Commissioners, extending over ten days—Mr. Cochrane taking first place. He is now attached to the Architect's Department of the permanent staff of the Board of Works, and is in charge of the western district, comprising the counties of Galway, Mayo, Roscommon, and Sligo—Athlone being the head-quarters of the district.

#### PUBLIC RIGHTS AND PUBLIC NUISANCES.

##### ADULTERATION OF MILK.

##### TWENTY-FIRST ARTICLE.

WHOLESOME and nutritious food and drink are as necessary for the sustentation of life or the preservation of health as pure air; and this being so, it is the duty of the legislature to frame such laws, and enforce them, as will put a stop to all adulteration practices, to the injury of poor and rich. If adulteration is in any sense needful, the adulterated article should be labelled as a mixture, and its components stated. Unfortunately the food and drink of the poor is subject to a variety of the most pernicious methods of adulteration, amounting, in fact, to absolute and wholesale poisoning betimes.

Leaving aside for the present articles of solid food, we will allude to a substance that is both a food and a drink. Milk is the first and most important article of human diet. We are all more or less dependent, when we enter the world, upon our mothers' milk, or that of other animals. Outside ourselves, however, the milk of the cow is the principal article of diet for the infant young, and its purity ought to be unquestionable. It is scarcely necessary here to enter into the subject of the components of human milk, or furnish the results of different analyses that have been made. These analyses vary much, and it is scarcely to be wondered when we consider the simple tastes of the brute creation in comparison with those of men and women kind. A change in food of cattle continued for any length of time will also create a change in the quantity or quality of the milk. It must be so also with the human kind.

If we would at all advise here on the head of parental duty, it would be to advise poor and rich mothers, if in health, to suckle their own children, and to partake themselves of wholesome and nutritious food, and to be very sparing in the use of spirituous drinks, except ordered by a respectable medical practitioner. Mothers who are addicted to drink are unfit to suckle their children, and so are those who are in ill-health or suffering from any lasting or chronic disease. The child of a half-fed, ill-clad, and badly-housed mother must suffer; and if the means that should go for food and bodily and household comforts are expended in drink, both parent and child, but particularly the latter, will be robbed of its natural rights. Why have we so many sickly and deformed children? and why does such a heavy percentage die off yearly, and that, too, in the early months of their infancy? Simply through the neglect of their parents, by sins of omission and commission.

Passing from this painful subject, we will take notice of cows' milk as an article of diet, and some of the methods of adulteration at present adopted. Milk, according to the latest descriptions, is "a solution of milk-sugar, caseine, and certain mineral salts;" but it contains fat also, partly in solution, but chiefly in the form of globules. Milk which has been allowed to stand for some

time undergoes spontaneous changes, and forms a thick yellowish substance known as cream. This collects on the surface, while the milk beneath becomes thinner and of a paler blue.

It is scarcely necessary to say that the milk of cows is used very much as food for the young, and as a constituent of diet among adults. It is also used in particular cases and in particular ways. It is a nourishing and sustaining food for invalids, particularly in consumptive cases, or where there is a tendency to that disease.

Two of the most ordinary forms of adulteration in the milk trade are those of skimming milk either wholly or partially, or diluting the milk with water, or with what is jocularly known in London as "Simpson." From illustrations given in the lately-published "Manual of Public Health," from analyses by Dr. J. A. Wanklyn, it is concluded that not 10 per cent of the milk sold in that metropolis is genuine—that is to say, neither skimmed nor watered. These statements were borne out by an examination of the milk supplied to several of the metropolitan workhouses and hospitals. The addition of water to milk must, of course, diminish the proportion of solids in the milk. Skimming will diminish the proportion of fat, leaving the proportion of "solids not fat" unaltered. The method of detecting the fraud, therefore, in these instances is based upon a determination of the total solids and also of the fat. The average components of good cows' milk is about 12.5 parts of solids and 85.7 parts water. By dint of high stall-feeding, cows may be made to give richer milk.

Until recently it was customary to distinguish between genuine milk and watered by the specific gravity. Milk has a specific gravity of 1.029, but rich milk is lighter; and, were the specific gravity alone to be depended upon, we are assured it might be mistaken for watered milk. There is still another source of uncertainty, for by skimming milk the specific gravity is raised, and by the addition of water it is lowered. A system of alternate skimming and watering will raise the original specific gravity. One of the popular London analysts says that the soundest advice to give to those who are engaged in the testing of milk is to abandon the use of the lactometer. The lactometer has long been relied upon, but our milk adulterators at present are not much afraid of its testing qualities.

Skimming and watering, though the principal adulterants of milk at present, are supplemented by mineral adulterants, but not to such a great extent as some years ago. Repeated analyses of milk in London of late showed no mineral adulteration had been practised; but still this is not in itself a proof of it not being occasionally done. Organic adulteration of milk at present is not very common; but whether chalk or salt is added or not, there is sufficient evidence that the poor suffer considerably and constantly from outrageous adulteration in the matter of water. The poor seldom see the sight of cream in the small quantities of milk they are able to purchase.

During the last three or four years the prosecution of several dairymen or milk-sellers revealed the fact of a number of notorious cases of milk adulteration, in some instances amounting to 100 per cent. The nefarious practices have somewhat abated, but still there are many dairymen and others who purchase milk for retailing, and adulterate it to a large extent. Some defenders of these public robbers contend that water is no adulteration. The danger would be less, and the wrong borne patiently on the part of many individuals, if they were certain that the mixture was the result of the addition of pure water. Dirty water or whitened water adds to the solids, though not the fatty solids. If the stocks or pillory was in fashion, we would vote their use to the milk adulterators. The ducking stool might be advantageously revived for the criminal portion of the lady adulterators. Although not advocates for extreme measures of punishment, yet we

think that a heavy fine and the application of the lash would not be too severe for rascally habitual offenders of the male gender.

Adulterators contribute directly and indirectly to the poisoning and murder of the population, and many an infant's life is cut prematurely short by the nefarious practices of adulterators of food and drinks.

Within recent years we have had many patent mixtures under the name of condensed milk introduced to public notice. There is the Swiss condensed milk, made up in tin cases; and there is the Aylesbury condensed milk, an English manufacture; and lately we have had the Mallow condensed milk, from Munster, in this kingdom. We have tried the virtues of them all, and we cannot recommend them as a good substitute for the ordinary cream or country cows' milk. They are a substitute, and no more, and may be found useful when comparatively pure in places where fresh milk cannot be procured, or at sea. These mixtures lack the nutritious qualities of the pure cows' milk, and cannot be of much benefit to either infants or invalids.

Various forms of preserved milk are known besides those condensed specimens alluded to. Miss Nightingale, when nursing the sick and wounded soldiers at Balacava and Scutari, used Grimwade's desiccated milk, which is made by mixing the milk with a little sugar and alkali. After the mixture has been heated over hot water till it is of the consistence of dough, it is dried into hard cakes, crushed between strong rollers, and bottled.

At Aberdeen in 1859, at a meeting of the British Association, four kinds of preserved milk were exhibited by the Abbé Moigno. One of these—prepared by putting milk into a vessel, excluding the air, and exposing it to a steam pressure of 100° centigrade, and then packing in bottles—was said to be perfectly sweet and fresh after five and a-half years' keeping. Further experiments may evolve really good processes for the preservation of milk—a matter of some importance. All processes for preserving milk require great care and precision. The condensed milk at present sold is not nearly what it might be if it was properly manufactured. We fear that at present in the manufacture of condensed milk adulteration is practised to some injurious extent, as well as in other matters. While, however, milk is procurable from the cow, its purity should be insisted upon, when offered for public sale, for life and health is in a great measure dependent upon its use.

#### A VOICE FROM OVER-DARWEN.

An old subscriber, writing to us from Over-Darwen, in Lancashire, furnishes us with a very interesting account of his personal as well as public experience during the recent terrible fever epidemic. In his own household there was not a little suffering; but by prudence and common sense, and following plain directions, he surmounted his trouble, and saved the lives of those of his family attacked. He acknowledges his indebtedness to the articles on sanitary matters in the IRISH BUILDER. The following extract from his letter is suggestive. "There are 1,800 Irish in Darwen; only 75 out of that number had the fever, only six deaths. It must be the water that was contaminated. Those who were of drunken habits, and drank beer, did not take the fever, and the English families that live low in food, and drank beer, it did not visit their houses. The very cleanest of houses, and most regular families, the disease came to their houses and went along the length of streets." It was, certainly, the contaminated water which the people had to drink, assisted by the bad sanitary condition of the town, which led to the spread of the disease. There were upwards, we believe, of 2,000 cases of fever in Over-Darwen, and considerably over 100 deaths. It is to be hoped that

the lesson of 1874 will not be forgotten, and that pure water and pure air, good drainage, and cleanly homes and streets, will in future be insisted upon and provided in Over-Darwen.

#### LAND RECLAMATION.

We would direct the attention of our readers in general, and those specially interested in sewage utilisation and foreshore reclamation, to the letter of Mr. Rintoul, published in this issue. It is almost needless for us to say that we agree in general with the writer's remarks, and, as our back issues will show, we have devoted considerable space to the discussion of the subject. Mr. Rintoul is entitled to be heard, and a perusal of his letter ought to still further ripen the growing opinion that must, as a necessity, soon find a practical embodiment for the carrying out of the improvements advocated.

#### UNKNOWN DUBLIN.

BY THE "OLDEST INHABITANT."

Edited by Mark Philip O'Flanagan, T.C.D.  
POLTON-STREET.

OUR first recollections of this once very busy, and still comparatively busy, street, extend far back into the days of our boyhood, when our broad shirt-collars were part and parcel of our shirts, and needed to be mangled or ironed at the same time, and our shoes were turned pumps of the strongest make that could bear a good kicking against lamp-post or kerb-stone. This was long before the era of Repeal buttons and railway excursions, when the huntsman's or mail coach guard's horn supplied the place of the steam whistle, and the old Charlies snored in their sentry-boxes or rung their rattles when the nightmare disturbed their heavy slumbers. Many a white-legged regiment have we looked upon passing through Polton-street en route to the North. Many a Rush and Skerries comically-contrived market cart, loaded with fruit or potatoes, have we witnessed jogging through to the markets out and about Petticoat-lane, and jogging home again in a jog-trot gallop. The Rush and Skerries cock-tail carts must have been invented by the great Gohhan Saor. It is to be hoped, before they die out of use, that the Royal Dublin Society or the Academy will secure one for preservation in the Museum of Antiquities. Genial and sturdy old traders have lived and prospered and died in this street, who deserve honourable mention. Some stuck to their knee-breeches, buckles and garters, until the last, and scorned to cover their calves with the newfangled fashions of degenerate days. Alas! they have all died out by this, though when we left off school not a few hale and hearty merchants, shop-keepers, professionals, and mechanics of the old race, were to be met with. The "Oldest Inhabitant" can better supply some of the odds and ends of Polton-street, for his years are many, and, in addition, he is descended from a long-tail family.

"My recollections, sir, extend back to the close of the last century, but my father's memories of this street were that of green fields and rivulets, stretching across the Broadstone, on the spots occupied by the Royal Canal harbour and the terminus of the Midland Great Western Railway. The King's Inns buildings were then unthought of, and the course of the open river Bradogue was visible between Grangegorman-lane and the commencement of Glasmanogue. A portion of this street, I believe, was the ancient 'Bull Park,' Drumcondra-road. The Broadstone of to-day has little in common with what it was even half a century since, the town is so much changed in this direction. But, to return to Polton-street; when I was a boy, it was full of trade and life in consequence of the trade and traffic to Smithfield

Market, and the business transacted at the linen and yarn halls contiguous. The linen industry of my early years was a proud boast for our citizens. Since the Union, however, Dublin has declined in the trade, and Belfast succeeded in taking the lead and keeping it. Many a gay sight and stirring scene have I looked upon at the spot where Polton-street is intersected by Stapel-street and North Ring-street. Morning and evening the street was full of country and city folk transacting business or passing in and out of the stage coach offices, preparing for their journeys. In my father's and grandfather's, as in my days, Polton-street was the starting point of stage cars, mail cars, and post chaises, for the northern counties and other places.

"It may amuse you and others to hear of the appointments that were made for travelling, ninety or a hundred years ago, and which existed with little change down to between forty and fifty years since. The Drogheda coach set out in 1786 from No. 1 in this street on Tuesday, Thursday, and Saturday, returning on Monday, Wednesday, and Friday. Another coach for the same town set out from No. 2 in this street on alternate days. A Drogheda post coach set out from 65 in this street on Monday, Wednesday, and Friday. A Newry coach set out from No. 1 on Monday and Friday at four in the morning, and another from the same place at nine at night. Another Newry coach set out from No. 2 in this street on Monday morning at three, Tuesday night at ten, Friday morning at three, and Friday night at ten. Similar coaches returned from Newry to Dublin on alternate days, one setting out from Mayne's in the High-street of Newry on Sunday, Tuesday, Thursday, and Friday nights at ten. The Man of War's Flying Post Chaise started from Leonard and Kennedy's, No. 9 Cross-lane, off Polton-street. The Man of War is about twelve or thirteen Irish miles from Dublin. The coaches used to stop at the Man of War Inn in that town, at the mere of which there was formerly a barrack for a troop of horse.

"In 1786 many professional men and merchants resided in this street, some of whom were extensively engaged in the linen trade. Francis Warren, of the firm of Warren and Co., lived at 57; he was one of the members of the Common Council of the Trinity Guild. John Pentland, a sheriff's peer and apothecary, lived at 56. There were two others of the same name in the city at the time, who, I believe, were members of the same family—John and Charles Pentland, timber merchants, who lived at 10 and 11 Hendrick-street. John was a practising architect of some small note. Nathaniel Hone, jun., merchant, lived at 63. He was a member of a family who are distinguished down to the present in commercial circles. The family of the Hones have played a prominent part in the commerce of this city as merchants and brokers, and some of the family in subsequent years were directors and chairmen of several public companies, and held seats in the old Corporation. Nathaniel Hone became an Alderman and J.P. Thomas Montgomery and Co., merchants, lived at 56; Thomas King, merchant, lived at 60; John Chambers, one of the old timber merchants of the days of the Irish Parliament, lived at 10; Robert Harrison, merchant, lived at 21; George Bambrick, watchmaker, at 54. If I remember aright, Bambrick was the maker or 'putter together' of some curiously-contrived eight-day clocks that may be still found in the houses of our old citizens, which tell the days of the week, the months, and the changes of the moon, and other matters generally found in the calendar. One John Dodd, an upholsterer, lived at 49 in this street towards the close of the last century, and I have a suspicion he was the founder of the house known once as Dodd and Elliot, auctioneers and valuers, and afterwards 'Dodd's Great Rooms,' (Furniture), at 12 Upper Sackville-street.

"A few distinguished limbs of law, barristers and attorneys of note, lived here at the





*Thomas Dowd & Co*

All Saints' Memorial Church.—Eglantine, Co. Down.





end of the century. Among the former were Peter Cantwell, a Commissioner of Bankruptcy, and George Vernon, who was called to the Bar as far back as 1747. Among the attorneys, who were many, were Richard Fenner, Keeper of the Writs and Clerk of the Warrants in the Common Pleas Court, and W. Fenner, Deputy Seal Keeper in same court.

"Half a century ago, and upwards, Polton-street was still a thriving street, and many merchants and substantial traders resided in it. The stage coach appointments remained and improved in the hands of John Gosson, and continued down till they were superseded by the iron horse. Gosson's Hotel at No. 8, and Richard Dollard's at No. 2, continued to divide the honours with visitors and travellers, but Gosson's monopolised the best business, and had contracts with the Government. The principal appointments of the day were, of course, in the hands of the late Peter Purcell, who was the proprietor of the Royal Mail Office and the Imperial Hotel, at 17 Lower Sackville-street; but mail coaches as well as stage coaches for some of the northern towns were despatched daily and alternately from Gosson's.

"Among the merchants who lived here about 1818 or 1820, were: Ralph T. Richardson, at 56; Richard Bastville, at 54; and Alexander Maguire, at 58. These last were extensive linen factors. There were upwards of forty in this trade in the above-named year, whose names appeared in the directories. About a dozen of years later these diminished to nearly one-half. Some of the wealthiest and most extensive houses in linen business in the last and earlier portion of the present century, were: Messrs. Samuel Dick and Co., Chambers and Co., and William Harkness. These houses did a large business even less than fifty years ago, but a few years later Chambers, Todd and Co., in name, were the only representatives as linen factors of the three great firms named, other houses, of course, continued, but they decreased in number till about twenty years ago, when there were no more than ten regular linen factors in Dublin. As far as this city is concerned, the great industry in connection with the Linen Hall, and out and about Polton-street, has within the last quarter of a century died out.

"This street, sir, has had its representatives in the building, coach making, and cabinet making trades, at different times; and both in the last century and present, academies or schools of note flourished here. Michael Wedick for many years in the present century taught here at 55, and Mrs. Birch kept a boarding school for some years at 51. Many years later, about the same spot, a patriot schoolmaster well known by Dublin politicians, taught Greek, Latin, and Irish, and kept the city, at times, in hot water by his tongue and pen. Poor fellow, I remember him well as a schoolmaster and a politician, as an editor afterwards in Connaught, and as a lecturer in America, where I have heard he shuffled off his mortal coil afar from the country he loved so well, but which, in his opinion, treated him shabbily. I believe he once aspired to fill the chair as Professor of Irish in one of our Universities, but political proclivities of the Polton-street schoolmaster and the Connaught editor, were too strong for the clerical stomach. Nathaniel Card, a merchant well known in this city, resided in this street upwards of half a century since; and John Dillon and Co., coach makers, were for many years residents. Dillon's, at 17, was said to be built by Dean Swift. In this house there was for years a piece of furniture used in the day as a kitchen table, and at night converted into a bedstead. The old seneschal court-house at 57, you are aware, has long ceased to be used as such, and is now a Foresters' Lodge, underneath which is a cabinetmaker's workshop. The late John Classon, of the Northumberland Baths, was the landlord of these premises. John Barlow, a printer of some note, commenced business early in this century at 26

in this street, and continued there for several years; he printed several pamphlets of current interest, one of which I alluded to on a former visit in connection with Aldborough House. Abraham Cox for several years kept a tavern at 57. There were not many, sir, of the name of Cox in trade in Dublin within this century past. At the close of the last century there were six of the name, two of whom were brewers and brothers, in James's-street. In or about 1818 or 1820 there were only four of the name, and about the year 1830 nearly the same number, two of whom were the afore-said Abraham Cox and William Cox at 44 in this street. Early in this century Walter Cox (i.e., the celebrated 'Watty Cox' of *Irish Magazine* and *Union Star* notoriety) must be added. He published, I believe, at 150 Lower Abbey-street.

"In 1818, and for some time previous, Duncan Ballantine, the founder of a stone-cutting and marble yard business of some note, had premises at 24 in this street. Mr. Ballantine carried on business here for a number of years till some time between 1830-40. Mr. Ballantine's business was transferred to Dorset-street, and he was succeeded at his old premises by the late Mr. Michael Kirwan and his brother Andrew. Michael Kirwan was a good employer, and executed good specimens of marble work in chimneys and monuments. Andrew died several years before his brother, and was a man of intellect and literary ability. He wrote several letters in the Dublin Press. Two or three of his more remarkable literary efforts appeared in the columns of the *Dublin Argus*, the organ of the city trades, published by O'Donohoe, a printer in Golden-lane in 1845-6.

"An agitation in 1845 was rife about the Davis Testimonial and the giving away of the work to a non-resident artist. Some interested parties contending that there was no artist in Ireland at the time capable of executing the work. Andrew Kirwan took up the cudgels on behalf of the Irish artists, and in the columns of the *Argus* he fiercely, forcibly, and truthfully made mince-meat of his opponents. He pointed to resident artists, and the Irish works of art executed by them, and he backed up his statements by letters from several public and professional men of note, including the late Sir Richard Morrison, architect; Stewart Blacker; Thomas Kirk, sculptor; and some others, all testifying to the truth of Kirwan's statements that there was sufficient artistic talent in Ireland to execute any work of art. Andrew Kirwan's letters attracted considerable attention at the time. Although not a professional sculptor, Kirwan was an excellent stone-cutter and monumental artist, and, I believe, could model pretty well. He signed one or more of his letters 'Andrew Kirwan' ('Stone-cutter, but no Sculptor'). Michael Kirwan continued in business at the premises in this street after his brother's death until his own decease, which took place within these last half dozen of years. His late foreman, John Chapman, succeeded to the old business at the same premises so long celebrated in the marble monument and chimney-piece trade, but has lately moved to Alexander Ballantine's old yard at 125 Upper Dorset-street.

"During the last forty years Polton-street has not improved in architectural appearance, if we except a few shops and one or two hotels that present a tolerable appearance. The lawyer element has died out of this street, notwithstanding its proximity to the King's Inns. Early in the century in the street leading to the Inns, resided many personages of legal and lordly note, but about them I may tell you something hereafter.

"In 1818 Thomas Tilly, proctor of Ecclesiastical Court, lived at 49 in this street; and scattered up and down about that period, were several attorneys. A few of the more important traders, and others, who lived within the last forty years in Polton-street, are: Moses Whitty, chandler; Thomas Walsh, coachmaker; Patrick Grace, gun-maker; Ballantine, and the brothers Kirwan, above alluded to; Walter Thompson, cabinet-

maker; Michael Wedick continued to keep on his scholastic academy from before 1818 till between 1830-40.

"The river Bradogue, I may remark, sir, passes under or near to the house long occupied by Moses Whitty. I remember to have seen the street opened opposite Whitty's house nearly thirty years ago, when some repairs or alterations were being done to the sewers. The water, as I looked down, rushed rapidly on. As I looked on at the workmen, the noted Tom Steele, the *Fidus Achates* of O'Connell, came up and also looked down into the opening on the rushing torrent. 'Twas the last time I saw 'Honest Tom' alive. The first time I remember seeing him was at the suppressed monster meeting at Clontarf, October, 1843. I never forgot the incident of meeting poor Steele in Polton-street; he had a gaunt, haggard, and weary look; a copy of Kane's 'Industrial Resources' was under his arm, and he was possibly meditating one of his navigation schemes for the Liffey. Alas! melancholy had marked him for her own. O'Connell's death soon afterwards took place, and, after some wayward drifting, the Head Pacificator's terse epitaph was written.

"The names, sir, of several noted in trade or in other ways, have, no doubt, escaped my memory, and, should I remember them, on another occasion they shall be honourably mentioned. It would occupy a small volume, sir, to tell you of local incidents, political and commercial, connected one way or another with this street. We shall pass through here to contiguous spots, if I live, and so, for the present, with your concurrence, we will bid poor old Polton-street good evening."

Agreeing to the desire of our right trusty cicerone, we passed home quietly by the "European," thinking of the pleasant days of Gosson and Dollard, when our lives were safer, though our journeys were slower than those performed in our later years, and those of the "Oldest Inhabitant."

#### TESTIMONIAL TO MR. BENJAMIN WHITWORTH.

A MEETING of the promoters of the testimonial to this gentleman was held on Tuesday at the Town Hall, Drogheda, under the presidency of the mayor. Messrs. Harbinson and O'Neill acted as hon. secretaries. A lengthened discussion arose on the subject of the sites left at the discretion of the committee whereon to erect the testimonial, which, it is decided, is to take the form of a drinking fountain, and a resolution was passed desiring the committee to request the Corporation to give a site in Peter-street. Assuming the council to meet the wishes of the deputation in giving the site, the meeting proceeded to select a design from amongst several sent in. Those consisted of three from J. W. Boucher, architect, Dublin; two from R. G. Robinson, two from G. Brown, and one from Joseph Bell, architects, Belfast; and two from a local architect, P. J. Dodd, Drogheda. Several of the designs were rejected, as being too elaborate, and finally four were selected for competition:—No. 1, estimated cost £450, R. G. Robinson; No. 2, estimated cost £450, R. G. Robinson; No. 3, estimated cost £350, J. W. Boucher; No. 4, estimated cost £430, P. J. Dodd. Several gentlemen considered the designs quite unsuited to the position on which the testimonial is proposed to be erected, the street being too narrow. Mr. P. J. Dodd, who was present, offered, by a modification of his plan, in taking away the base of his design, to reduce it so as to leave a passage of 9 ft. on either side. His plan was selected by a majority of the subscribers.

THE ROYAL HISTORICAL AND ARCHÆOLOGICAL ASSOCIATION OF IRELAND.—The annual meeting of this association has been postponed to Wednesday, the 20th inst., from the 13th, as previously announced. The chair will be taken at two o'clock. Members may introduce their friends.

## THE PAST AND PRESENT MEDICAL CHARITIES OF BELFAST.

(Concluded from page 11.)

In the middle of the last century, Belfast, through the intelligence and energy of its merchants, who laid the foundation of its present prosperity, began to be of commercial importance, which naturally attracted numbers of labouring classes as well as vagrants from all parts of the North, and these became so numerous as to demand the attention of the leading inhabitants of the town and adjoining country, a meeting of which gentlemen, consequently, was held in the "George" on the 20th day of August, 1752, to consider the question of building a poorhouse, hospital, and church, the necessity for which is shown by the following resolution, passed at a subsequent meeting:—"Resolved that, whereas a poorhouse and hospital are greatly wanted in Belfast, for the support of vast numbers of real objects of charity in this parish, for the employment of idle beggars who crowd to it from all parts of the North, and for the reception of infirm and diseased poor; and whereas the church of Belfast is old and ruinous, and not large enough to accommodate the parishioners, and to re-build and enlarge the same would be an expense grievous and unsupportable by the ordinary method of public cesses. Now, in order to raise a sum of money to carry these good works into execution, the following scheme has been approved of by the principal inhabitants of said town and gentlemen of fortune in the neighbourhood who are friends to promote so laudable an undertaking."

This scheme was a lottery, by which they were to raise a certain sum of money, the tickets to be sold in the principal cities and towns of the empire; but as the scheme did not receive much encouragement in London, and the tickets were cried down, the committee sent over to London Messrs. Gregg and Getty, with the power of an attorney, "to promote the execution of the scheme;" and at the same time arrangements were made for obtaining subscriptions, that by their assistance the lottery might be carried out; and, in order to restore public confidence in the scheme, the following advertisement was inserted in the papers:—"Whereas it hath been maliciously reported that the Belfast charitable scheme was to be given up, the managers think proper to give this public notice that the same is without grounds, and that they have taken proper measures to carry the said scheme into effect." Notwithstanding this advertisement, the scheme was still derided in London, and legal proceedings had to be taken against purchasers to make them pay for their tickets.

At last a sum of money having been obtained, a committee was appointed for the purpose of drawing up a memorial for presentation to Lord Donegall, asking him to grant a piece of ground to the society. He having acceded to this request, plans were invited from parties in England and Scotland as well as Ireland, stating to them the sum to be laid out on the building for poorhouse and hospital as £3,000, which sum was found sufficient, as the inhabitants of the country round about furnished stone, sand, lime, and water gratis. The plans having been received, were exhibited in the market-house for the inspection of the gentlemen in charge of the undertaking and inhabitants. After considerable discussion, three of the plans were selected, and sent to Dublin to Mr. Cooley, who was to improve on them. Finally Mr. Cooley's plans were adopted for a poorhouse to accommodate 36 inmates, and an hospital to contain 24 beds.

The foundation-stone was laid on the 7th August, 1771 ("a day memorable for many glorious events in the history of this nation"), and five guineas were enclosed in it. The buildings, when finished, had, in addition to the hospital and poorhouse, assembly-rooms for the use of the townspeople and profit of the charity. About the 17th September, 1774, the hospital was opened for the admission of the sick, who were admitted from the

several districts into which the town was divided. Foreigners also were admitted into the infirmary "on the consideration that they pay for their support and medicine." The physicians and surgeons, being asked if they would be pleased to attend such foreigners gratis, made reply, "As we have already contributed by subscription to your charitable institutions, and offered gratuitously our attendance on the indigent sick of the town and parish of Belfast, we cannot at present undertake to enter into foreign engagements, the extent of which might involve us in a business very different from that which we intended when our services were offered to your society."

In addition to receiving the sick into the infirmary, an extern department was established, at which a physician and surgeon attended each Tuesday and Saturday, for the purpose of giving advice and assistance to such persons as came within the rules of the society. Wards were also allotted for the treatment of lunatics; and we find, from an entry in the committee-book, that one of the lunatics was to be handcuffed and chained by the leg. The physician and surgeon attended by rotation three months at a time. Drs. Stephenson, Ferguson, Halliday sen., Apaley, Halliday jun., Drennan, and Bankhead; Messrs. Campbell, Bowen, Comyns, M'Clurney, Marshall, Purdon, White, M'Clelland, Anderson, Gelston, and Montgomery, were some of the first attendants of this noble institution.

I may here mention that in this establishment were made the first trials of inoculation and vaccination in the North of Ireland, as may be seen by the following resolution, passed by the committee on 4th May, 1782:—"Resolved unanimously, that the thanks of this committee be given to Dr. Drennan for his introduction of the plan of inoculation, which has been adopted by the society, and that Mr. Bristow be requested to notify to the public the adoption of the plan." The plan was considered of such value that on the 1st June, 1782, we find the committee passing this resolution:—"Resolved, that thanks be returned to Dr. Drennan in the public papers for the scheme of inoculation introduced by him into the house, and that Mr. Crombie do wait on him and acquaint him with the resolution; and that he send it to the papers, provided the doctor doth not oppose it." Vaccination was tried by Dr. Halliday jun., as the entry in the committee-book, 29th of March, 1800, attests:—"Dr. Halliday jun. attended, and proposed that the children of the house, or as many of them as had not the small-pox, may be inoculated for the cow-pox, upon the assurance that it is not infectious; that it is an easier disorder than the small-pox, as certified by a number of most respectable physicians in England. Resolved, that the experiment be tried on a few of the children in the house, provided that the parents of the children freely consent thereto."

For many years this society continued the only charity in the town; but gradually other institutions became established, which relieved its expenditure and enabled the committee to restrict their admissions to the poor and diseased; and within the last few years, through the munificence of the late John Charters and Edward Benn, new wings have been built for the accommodation of children and the sick, and at present there exist four commodious wards for adults and two for children, containing upwards of forty beds for patients labouring under chronic diseases. These are under the care of Dr. Ferguson and myself. The dispensary was established in 1792, thereby enabling the Belfast Charitable Society to close its extern department, as by its means the poor were attended at their own residences. It rapidly became popular, and in the first four years and four months 2,406 patients received advice and assistance; it has been developed by the Poor Laws into two extensive dispensaries, attended by seven medical gentlemen.

The fever hospital, as before stated, was first established in Berry-street, being at-

tached to the dispensary, with which it continued to be associated for years, and proved most effectual in checking the epidemic at that time raging in Belfast, on the abatement of which fever it was closed; and no hospital for infectious diseases existed until 1799, when it was re-opened in West-street, in charge of two physicians (increased in June, 1819, to three), two consulting physicians, two surgeons, and an apothecary.

Finally, on the 18th August, 1817, the hospital was removed to the present building in Frederick-street, when four physicians and four surgeons were appointed to attend regularly. Of late years it has been enlarged by the liberal donations of the late John Charters and Sinclair K. Mulholland, who have built two large wings; so that now it may be said to rank foremost among the charities not only of Belfast, but of the North of Ireland.

The Lying-in Hospital was opened in 1794, and supported by subscriptions from ladies in the town and county. About forty-five years ago it was removed from its original site in Donegall-street to its present position. Its attendants are too well known and remembered to require any mention on my part. However, I may say that it is at present in charge of Drs. Smith and Burden, the latter of whom has retired from active practice to enjoy the rest so well earned by his attention to suffering humanity.

The Chapel-lane Dispensary was opened in 1827, for treating especially diseases of the eye, and, through the talent and exertions of its two medical attendants, became thronged with patients. It was at last closed, after continuing several years, soon to be succeeded by a similar institution, which continues to the present day.

These that I have mentioned were the medical charities which existed when Belfast was but small in comparison with its present importance. As population increased, charitable institutions sprang up, gaining for Belfast a reputation for benevolence which extends over the entire kingdom. The first in order of these more modern institutions is the asylum for the treatment of the insane, established in 1829, and at present under the care of a gentleman whose reputation is more than European, Dr. Henry Mac Cormac, consulting physician to the asylum, who is most ably assisted by the resident medical officer, Dr. Stewart, considered one of the first physicians in Ireland for ministering to a mind diseased.

Next comes the Ophthalmic Hospital, built by the benevolence of a lady whose name is enshrined in the records of almost every local charity; and I am sure when I mention Lady Johnson you will all join in the wish that she may long live to witness the good results that spring from her philanthropy. This hospital is under the care of the Drs. Browne, who are well known to you all.

Another institution which has grown to colossal proportions is the hospital for infectious and contagious diseases, adjoining the Union Workhouse, and under the Poor Law management, the principal medical officer of which, Dr. J. S. Reid, is so well known and appreciated that he requires from me nothing further than the mention of his name.

An hospital for cutaneous diseases, established in 1864 as a dispensary, is now, through the donations of the late Edward Benn, about to be removed from its present site to a new and handsome building in Glenravel-street, beside another institution founded by the same large-hearted man, the Ulster Hospital for Diseases of the Eye, Ear, and Throat; these two are respectively attended by Dr. H. S. Purdon and Dr. M'Keown.

Still another hospital, founded by Mr. Benn, is the Samaritan, for diseases of women and children. It is under the care of Dr. M'Mordie; in addition to which we have two other hospitals for children, which are, through their attendants, contributing much to alleviate the suffering of the young; and, finally, there is just now established, through the benevolence of the late Samuel Martin, an hospital

for children labouring under chronic diseases. It is built in a healthy locality near Belfast, on ground purchased by him, and given, with the building, to the committee of the Belfast General Hospital.

Having now mentioned the old and new medical charities of Belfast—all of which are, under the judicious care of their several attendants, labouring to check disease, relieve suffering, and promote health,—it only remains for me to conclude my brief sketch of their history with the hope that the gentlemen who gave their time and skill to them may attain the position and reward their merit deserves, and continue to enjoy the respect and affection of the public when he who now addresses you has in his turn passed away.

### COUNTY COURT-HOUSES AND COUNTY GAOLS IN IRELAND.\*

IN designing the plan of a building suitable for the important public business transacted in county court-houses, an architect has to solve a complex problem, or rather a series of problems, in the solution of which a few slight defects or omissions will injure the character of his work in a degree altogether out of proportion to its general merits. A careful arrangement will appear absolutely necessary when one considers the number of interests and individuals to be accommodated, and that among the persons to be satisfied will be found many of the highest intelligence versed in criticism, and sensitive about their rights. The following paper is intended to describe briefly the accommodation required in the court-houses of assize towns in Ireland. It is obligatory under various statutes to provide in courthouses, assembly rooms, courts, and offices for special purposes connected with the administration of justice, and with the fiscal government of counties. Other apartments and offices, though not in the same category, are provided because they proved necessary for public service. Courts of assize, quarter sessions, and petty sessions are among the most important of one class of uses served by court-houses. Elections, meetings of grand jury, presentment sessions, &c., another class; and to a third class may be assigned the offices in which certain public officials are required to perform their duties, and in which public documents are prepared, or lodged for safe keeping and reference. In serving these numerous and important uses, a court-house becomes frequented by and well known to the general public; so that its plan will be found to affect materially the despatch of public business, the comfort or convenience of many persons, and the credit of its architect. It is usual, and generally speaking convenient, to have two floors and a basement; to place housekeeper's apartments, store-rooms, and cells for prisoners in the basement; courts and offices connected with judicial business on ground floor; grand jury rooms and offices connected with fiscal business on first floor. This kind of arrangement or classification will be found expedient generally, but of course modifications may become advisable, according to circumstances: however, assuming that it can be adopted safely as a general rule, the accommodation required on each floor respectively will be as follows:—

**Basement.**—The court keeper's dwelling may consist of living-room, kitchen, bed-room, pantry, scullery, lumber-room, coal-cellar, &c., and a stairs to give access to the upper floors. Good light, ventilation, and sewerage are indispensable. In an area or yard a force-pump with supply-pipes to water-closets will be useful. In some counties it is customary for members of grand jury to dine or lunch daily in the court-house during their attendance; in such cases it is necessary to provide another kitchen, servants'-room, pantry, plate-room, wine-cellar, &c., and to arrange a convenient service passage to the dining-room. However, the custom referred to is becoming disused generally, and will probably be altogether extinct in a few years. Under the crown court may be placed cells in which prisoners can be kept until wanted in the dock. A private passage from the gaol to these cells should be arranged wherever practicable, so as to avoid bringing prisoners through the streets. Separate cells are required for males and females, and waiting-rooms for warders, arranged so that the prisoners can be continually watched. Two water-closets should be provided, and a stairs to the dock. All cells or waiting-rooms should be well lighted, ventilated, and warmed.

\* By Mr. John Brett, C.E. Read at meeting of Architectural Association of Ireland.

**Ground Floor.**—The first apartment to which attention is due is the great public entrance-hall, sometimes called the shire-hall. This is the main thoroughfare, waiting-place, and conversation-room for the public at assizes, sessions, general elections, and other gatherings. The hall is generally a noisy place at such time owing to the din of talk, and bustle of people moving about, though there may be a lull occasionally when proclamation is made for witnesses or jurors to come and appear, or when a stern command for silence is heard. With reference to this noisiness, care must be taken to prevent it disturbing the courts. Anything tending to cause indistinct hearing while trials are going on would be wholly objectionable. The practice of making proclamation in the hall is not satisfactory, inasmuch as the persons called very often fail to understand, not merely from the absurd mistakes which criers make in pronouncing names, but also from the sounds being rendered indistinct by reverberation, and by the hum of talk. As a partial remedy it would be advisable to provide a waiting-room for witnesses and jurors where they may be more distinctly called when wanted, and where they may have a more comfortable waiting-place than in the hall. A waiting-room, &c., for females should be arranged; and latrines for males should be provided outside the court-house. Most of the existing court-houses are defective with respect to such conveniences. It is desirable to give the hall considerable size and some stateliness; excessive size must be avoided, and for obtaining effect I would suggest good proportion rather than elaborate ornament. Floor space from 1,000 to 1,500 square feet will in general be found sufficient. The space for public use will be increased considerably by ante-rooms and minor thoroughfares. Adjacent to the hall, the crown court, and the grand jury room, are placed rooms for the crown solicitor, two *en suite* as offices for the solicitor and his clerk respectively, and a third as a waiting-room for crown witnesses. A convenient passage for getting these witnesses to the grand jury room, and another to the crown court should be arranged. Offices for the clerk of the crown may be placed near the crown solicitor's; one large room, or two smaller *en suite*, for the clerk and his deputy respectively, besides a fireproof closet. The clerk of the peace's offices may be placed near the record court; one large, or two smaller *en suite*, and a fireproof closet. Five other rooms besides those already mentioned may be placed on the ground floor near the hall—that is to say, one each for sheriff, magistrates' clerk, barristers' robing-room, attorneys, and for holding consultations; the last is seldom provided separately, one of the grand jury committee-rooms being used for consultations when required. None of the offices or apartments mentioned, except the hall, need be of large size. Floor spaces from 300 to 400 square feet will, in most cases, be sufficient; all the rooms should be well proportioned, and well lighted, provided also with fireplaces and good ventilation. For assize business two courts are required, namely, the crown court for criminal trials, and the record court for civil cases; the former will be used for judicial business, also at quarter sessions and petty sessions; both courts may be alike in size, with floor space from 1,350 to 1,500 square feet for each. Before considering how to plan them it is advisable to settle whether the judges shall approach their chambers through the shire-hall or through a private entrance, inasmuch as it is expedient to make such arrangements as will enable those personages to pass into, or between their chambers, in private. I am of opinion that a separate and private entrance for the judges is advisable in general, but the same entrance may be used to give access to courtkeeper's apartments, and to the grand jury rooms and fiscal offices. A chamber, with an easy and private passage to the bench, must be provided for the judge of each court. Petty jury rooms, accessible only from the jury boxes, are required; it is advisable to provide two such rooms for each court; the average floor space may be 200 to 250 square feet. Passages by which the public can enter each court from the shire-hall ought to be very easy and well marked, because any little intricacy or insufficiency will surely cause confusion and dissatisfaction. The various doors must be placed so as to enable jurors, witnesses, lawyers, and audience to reach easily and without confusion their proper places. Barristers are often called from one court to the other, so that an easy passage between for their use would be found advantageous. The plan of seats and compartments in the crown court is a little complicated, owing to their number, their arbitrary limits as to area and relative position, and to the thoroughfares. The bench may be considered as one of the principal compartments; it may be placed adjoining a side wall, with the witness seat at one hand, and the petty jury box at the other,

lawyers, prisoner, and audience in front. The position of the bench regulates that of the grand jury box, as the judge has to see and address the grand jury. When the court is used at quarter sessions and petty sessions several magistrates sit together, so that the floor-space of the bench ought to be considerable, sufficient perhaps for ten or twelve magistrates. The clerk of the crown sits in front of the bench, facing the audience. His pen should be sufficiently near the petty jury and the witness to allow the clerk to perform conveniently his duty of administering oaths to jurymen and witnesses. The floor of this compartment should be about 2 ft. under that of the bench, so that its occupant, when standing up, can receive instructions from or confer with the judge. At quarter sessions the seat will be occupied by the clerk of the peace; at petty sessions by the magistrates' clerk. The petty jury must be placed so as to hear and see distinctly witness under examination, prisoner, judge, and examining counsel. The jury box must contain accommodation for twelve men sitting, besides space in which another twelve may stand, as it sometimes happens when one jury retires to consider its verdict another will be empanelled to try a new case. Therefore, when the old jury comes out again there should be space for it to stand without incommencing the new jury. The witness seat should face the jury, with the judge at one hand and examining counsel at the other. It is important to place the witness so that his evidence and demeanour can be well observed, not only by judge and jury, but also by the prisoner. Several rows of seats for counsel and attorneys may be placed facing the judge; the first and second rows should be given respectively to the attorneys and counsel engaged in a case; within the space surrounded by attorney's seat, witness, clerk of crown, and the jury, there ought to be a table upon which models or other bulky articles may be displayed when required. A compartment for reporters is best placed between the witness seat and the bench, and partly facing counsel. It is usually most convenient to place the dock nearly central in the court, and to arrange it so that the prisoners shall have a full opportunity of seeing the witness, and of hearing everything said in evidence; too much stress cannot be laid on these points. Standing room for ten or twelve men is required, besides seats for two gaolers. In front of the dock, but outside it, there should be a vacant space in which persons who have to appear in discharge of bail may stand. Seats for one or two policemen or bailiffs should be placed at each side of the dock, and there should be one for a judge's crier placed where he may have a good view of the court, and of the jury particularly. The crier has generally to wait on the judge as a private servant or messenger, so that it will be useful to provide for him some ready way of approaching the bench. A box for the sheriff should be placed near the bench, perhaps behind the reporters, and in the same neighbourhood some seats for magistrates and county officers in attendance at assizes. Tiers of seats for the general public, and for jurors and witnesses who wish to wait in court, may be placed behind the dock, partly on ground-floor and partly on galleries; but it is advisable as a general rule to dispense with galleries for public use. A special compartment or gallery must be provided for the grand jury, to contain seats for twenty-three; it must be placed so that its occupants can be conveniently addressed by the judge. An isolated passage to the grand jury room will be required. The arrangement of the record court need not differ materially from that required in the crown court, after omitting the grand jury box and the dock. In this court the judge's registrar will occupy the space assigned in the other court to the clerk of the crown; and the space corresponding to the dock may here be given to seats for suitors waiting.

**First Floor.**—It is particularly necessary to give convenient access to the first floor. A broad and easy stairs for public use should lead directly from the shire-hall to the grand jury room. Another less important may lead from the private entrance and give access to the fiscal offices, and a third may lead from the crown witnesses' waiting-room. On the first floor it will generally be convenient to have the grand jury room, in which public sessions of grand jury are held, committee-rooms, offices for county treasurer, grand jury secretary, and county surveyor, a waiting-room, cloak-room, one or two lavatories, &c. In some counties, as before remarked, it is customary for the members of grand jury to dine or lunch in the court-house; and where this happens a suitable dining-room, with accessories, must be provided. The grand jury room is the most important apartment on the first floor, and of course it should be well proportioned, amply lighted and ventilated, and provided with sufficient fireplaces. The necessity for thorough ventilation will be understood when it is remembered that large crowds assemble

and remain for hours in this room during public sittings; floor space from 600 to 900 square feet is required. During the transaction of fiscal business part of the room is reserved for the grand jury and county officers, but the other part is left open to the public. When the grand jury is engaged in finding bills of indictment none are admitted but the witnesses brought in to be examined on the bills. When in full session for fiscal business the grand jury consists of twenty-three members, one of whom presides as foreman; they sit round a table, hear reports or statements from officials or others authorised to address them, examine witnesses about fiscal matters, and finally they conduct, inquire into, and determine all the fiscal business within their jurisdiction in open court. I am of opinion that it is most convenient to place the grand jury round a table of horseshoe shape, witnesses and others necessary to be heard, being brought to the open, can easily address the jury and be seen by each member. Outside the reserved space there should be seats for grand jurors waiting, or for gentlemen of distinction who desire to attend the proceedings; behind these, but enabled to see and hear everything, the general public may be placed. It will be necessary to provide at least two rooms for committees of grand jury; floor spaces from 300 to 400 square feet will be sufficient. A small waiting or ante-room would be useful. Under a recent Act of Parliament the duties separately performed by the grand jury secretary and the county treasurer are henceforth to be performed by the grand jury secretary alone when the existing treasurers retire, and in some counties the change has already taken place. Under the new system the secretary's offices should consist of two rooms *en suite*, together with a good-sized fireproof closet for preserving papers in his charge. Where the old system prevails, the treasurer requires one large room, or two smaller. The county surveyor may be provided with one large room, or two smaller *en suite*. In the outer offices on each floor a counter should be set up, leaving sufficient space at one side for persons calling on business, and at the other for clerks, desk, presses, &c. All committee-rooms, offices, waiting-rooms, fireproof closets, &c., must be provided with fireplaces, good light, and ample ventilation.

Before concluding this imperfect sketch, I wish to remark that it is very important to provide for amply ventilating and warming the courts; not merely by unobtrusive contrivances, but also in some degree by others of an obvious kind. The visible existence of a practical stove, or a good open grate will give satisfaction, even though their practical utility be comparatively little. I am of opinion that a fresh-air chamber with an inlet for the outer air should be contrived under the floor, and that numerous small holes should be pierced through the floor into the air-chamber. I would allow the foul air to pass through the ceiling into a space above it having outlets in the roof; and I should like to have a flue enclosing a gas-jet or other contrivance to cause an upward current of foul air. By placing in the usual way hot-water or hypocaust pipes in the lower air-chamber, the fresh air can be warmed before ascending through the floor.

#### ANNUAL REPORT OF THE INSTITUTION OF CIVIL ENGINEERS, ENGLAND.

A COMPREHENSIVE abstract of this report appeared in our last issue. There is a list of subjects printed *in extenso*, to the number of 40, on which papers are invited from members. This list includes almost every variety of subject connected with the field of the civil engineer; and if the papers sent in are of adequate merit, awards will be given.

On the subject of papers intended to be read, we think it as well to quote a few remarks from the report, as it bears upon a matter treated elsewhere in these pages in connection with the architectural profession:

"The council feel that what should now be encouraged are papers embodying careful thought and intelligent study, rather than bare description. There is no lack of examples of high-class essays on engineering topics, and no lack of subjects offering abundant scope for others. It has already been intimated that memoirs will be received on projected works, when such memoirs relate to *bonâ fide* undertakings, and deal with the discussion of important scientific engineer-

ing problems, provided the papers are submitted with the sanction of the engineers responsible for the works in question. And further, any scientific essay which has a practical bearing on engineering operations will be acceptable.

"The council ventures to hope that many highly-educated and experienced engineers will be prepared to contribute communications of a character to do honour to the body to which they belong. The council have thought it right to subject all papers to a more searching examination than heretofore; and while they offer a welcome reception to any contribution if it shows original merit, they will be compelled to exclude merely commonplace descriptions of ordinary works, which descriptions, as they have pointed out, are no longer of the same use as in former days."

The above remarks are, we consider, very just, proper, and well-timed, and we hope our Royal Institutes and Architectural Associations will act in a similar manner.

The news portion of engineering and architectural undertakings have their proper place in the columns of the professional or other journal; but papers read at the meetings of professional societies ought to evidence professional ability and not mere commonplace description. The proceedings of architectural and engineering bodies "should be creditable both in a scientific and in a literary point of view."

#### THE LATE MADAME VON FEINAIGLE.

THE decease of the above estimable lady affords me the opportunity of correcting an error into which my cicerone and myself had fallen in our notice of the Feinaiglian Institution and other matters connected with the locality in which it is situated.

In "Unknown Dublin" of September last, it was stated that the Rev. Tresham Dames Gregg, D.D., was the son of Mrs. Feinaigle, by her first husband. This was quite correct, but it was added that her first husband was the governor of Newgate. Herein was the error. Madame Von Feinaigle's first husband was Hugh Gregg, Esq., formerly of Dublin and Cork. A mural tablet to his memory may be seen in the church of St. Mary, in the city of Kilkenny. The present Rev. Tresham Dames Gregg is therefore some steps removed from the governor alluded to, the latter being his great grandsire, and who, though occupying the position he did in this city, in troublous times, bore the reputation of being a true gentleman. Mr. Tresham Gregg, the governor, it may be added, was himself a descendant of the Treshams of Lyveden, in Lincolnshire, one or more of whom were implicated in the Gunpowder Plot. There is an ancient tradition that the Treshams (the Rev. Dr. Gregg's ancestors, now represented by Lord Lyveden—*nee* "Vernon Smith") would reform the faith of the Church and of all Christendom. This prophecy will be found in a book called the "Memoirs of the House of Tresham."

In the early part of 1832, on the removal of a lintel over the doorway of Sir Thomas Tresham's old mansion at Rushton, in Northamptonshire, a handsomely bound breviary fell out upon the workman, and a considerable opening was discovered in a thick wall, which was filled with bundles of manuscripts and Catholic books, and a portion of the domestic correspondence of the Tresham family between the years 1590 and 1605. Sir Thomas Tresham died at the Tower of London, in September, 1605, and his estates devolved upon his eldest son, Francis Tresham, one of the implicated conspirators. These papers found contain much valuable historical information of the domestic history of the Catholics and the times of James I.

On the restoration of the Knights Hospitallers of St. John of Jerusalem, the grandfather of Sir Thomas Tresham was made a prior of the order by Queen Mary.

Sir Thomas, the father of Francis, was

originally, it is said, a Protestant, and was knighted by Queen Elizabeth, at Kenilworth, in 1577, but he was afterwards reconciled to the Church of Rome. From the time of his conversion until his death, in 1605, he was constantly subject to persecution, and he was arrested and sent to prison on the suspicion of having harboured missionaries and Jesuits. He was also prosecuted by the Star Chamber, together with Lord Vaux, Catesby, and other Catholics, and sentenced to pay a heavy fine, and also to imprisonment. For more than twenty years he continued to pay £260 per annum into the treasury, being the statutory penalty of £20 per lunar month for recusancy. Sir Thomas Tresham, therefore, had undergone twenty-four years of "restless adversity and disgrace," according to the "Lansdowne MSS."

In Caulfield's "History of the Gunpowder Plot, 1810," there is a small oval picture of Sir Francis Tresham.

For further particulars in connection with what is stated above, the reader may consult Grainger's "Biographical History of England," More's "Historia Societa Jesu," "Grainger's MSS.," and "Criminal Trials."

In last year's volume of the IRISH BUILDER, particulars will be found of Professor Von Feinaigle, the second husband of the subject of our notice, and of the famous educational institution he founded, and which existed for a quarter of a century at Aldborough House. It is to be hoped that a faithful memoir of the labours and services of Professor Von Feinaigle will be given to the public while there are men still alive who remember him, and who have been educated at his school. It has been shown that several of his pupils have become celebrated professional men. Nor should his widow or stepson be forgotten, for both were connected with the management and mastership of the once famous Feinaiglian Institution.

A few words more, and I am done. Madame Feinaigle (*nee* Dames) died at her residence, Sandymount, near this city, on the 14th of last month, at the great age of ninety-four. What a world of memories and associations have not been connected with her career, and that of her husbands and surviving son, to whom, in justice to all, and particularly to the living, I owe this *amende honorable*.

MARK PHILIP O'FLANAGAN, T.C.D.

#### L A W .

##### DROGHEDA QUARTER SESSIONS.

##### THE PLASTERING AT THE DOMINICAN CHURCH.

A process for £34 was brought by Thomas Fox, a plasterer, against the Rev. Mr. Meadth, balance due for work done in the course of building the new Dominican church. On the case being called, Mr. Simpson applied for an adjournment till after two o'clock; Mr. G. C. Ashlin, architect, an important witness in the case, could not arrive until that hour.

Chairman—I will let it stand until the end of the sessions.

Mr. Verdon having objected, the trial was proceeded with. The case resolved itself into a question of account as to measurement and quality of work done under an accepted tender. After the examination of the plaintiff and Mr. J. P. Dodd, who made measurement of the work done, in support of plaintiff's case, and defendant, together with Mr. Cullen, T.C., and Mr. Carpenter, members of the building committee, for the defence.

The Chairman said he should, from the way the process was brought, direct the jury that there was no contract under which defendant was liable, and therefore the case should be dismissed. It should have been brought against the committee, if any action lies. The case should be dismissed without prejudice.

Mr. Verdon applied for the names of the committee.

Mr. Simpson—We will give you every facility.



## SLOB AND WASTE LANDS.

We are glad to find the opinions we gave on the reclamation of the slob on both sides of the Liffey confirmed by a letter in *Saunders's News-Letter* last week on the sewage of Dublin (which we recommend to the earnest attention of our Corporation and of the townships of Clontarf, Pembroke, and Blackrock, in which they are all so vitally interested) from G. Henry Kinahan, General Survey of Ireland. He says:—

"As it now seems probable that the Main Drainage of Dublin may be carried out, it appears expedient that the inhabitants should consider if they could get any return for the vast amount of money they will have to expend, also that the plans proposed will be really effective. Let us consider the last first. What seems to be suggested is, that all the sewage should be brought into main drains, and that from the latter there should be outfalls into the open sea, into which the sewage will be discharged, and thus carried away. Will this be the case? I question very much if it will. The flood tidal wave of this portion of the channels runs nearly from south to north along the Wexford and Wicklow coasts till it comes to Dalkey Island, where it splits, the main current running north past Howth, while the secondary current runs north-west along the coast to Blackrock, when it curves northward to the Poolbeg Light; therefore, any sewage that is discharged from an outfall anywhere along the coast between Sandymount and Dalkey, instead of being carried out to sea, will have a tendency to be carried inland, and deposited along the shore line, but principally on the strands south and north-east respectively of the south and north breakwater walls; and the only place an outfall for the south portion of the city could be placed is at the Poolbeg Light, as there the flood tidal wave and the stream from the Liffey would have a tendency to carry the matter seaward; but even here all the matter would not be carried away, as much of it would be drifted in on to the Sutton and Clontarf strands. An outfall for the sewage of the northern portion of the city would be more easily managed, as it could be carried along the strand to Sutton, and thence across the land into the sea to the north of Howth. That the tidal waves act as has been described, is evident from the silting up that has taken place since the south wall was built, also the two piers at Kingstown, the latter exemplifying its effect by the silting up of Scotch Bay and the western portion of the harbour. As it is so hard to get rid of the sewage, the next question is, why must it be got rid of? Cannot it be kept and utilised? To me this seems to be the solution of the question. Let it be kept and used to make rich, fertile land of the previously-mentioned lands on the south and north-east of the south and north breakwater walls, and these, if once reclaimed and turned into water-meadows, would not only pay for themselves, but also leave a margin of profit to go against the expenditure for the main drainage. Such a project, I am perfectly aware, would meet with opposition, as a similar one did on a former occasion, from some people, who would say that such meadows would be injurious to the health of the people of Dublin. Anyone, however, making such an assertion only displays his ignorance, and prior to doing so he ought to visit the water-meadows of Edinburgh, and learn the health and death statistics of the people that live in their vicinity, as on the hottest day in summer there cannot be detected even the smallest taint in the atmosphere. Of course, in the case of the Dublin strands, there might be some effluvia at the first, prior to the surface having become enveloped with vegetation. This, however, could be mostly if not totally prevented by carrying on the reclamation judiciously, the land being divided into sections, and the sewage let on to those that were cultivated. I shall give a rough estimate as to what the expense of reclamation ought to be, and the returns that might be expected. In the south flat, near Merion, there are three and a-half square miles, or 2,240 acres, which, at a value of £15 an acre, would give a yearly income of £33,600. The sea embankment for this space would be about two and a-half miles long, which, at £10,000 a mile, would equal about £25,000, to which add £10,000 for the land drainage canal, a second £10,000 to be expended while getting the land into cultivation, and perhaps a third £10,000 to pay off existing rights, which would leave a gross expenditure of £55,000, or, in round numbers, £60,000—sunk capital, to return, in round numbers, say £30,000 a-year. The strand between Clontarf and Sutton contains about four and a-half miles, or 2,880 acres, that at £15 equal £43,200. To take this would probably cost about the same as the south flat, for although the sea wall would be longer, yet the materials to form

it from could be easier got; that is, £60,000 of capital to give a yearly return of £40,000, or, taking both together, £70,000 for an outlay of £120,000. From these figures it will appear that the main drainage of Dublin, combined with the reclamation of these sands, should be effected not only without loss to the citizens of Dublin, but after a time these should return an income that would yearly increase. The expenditure given may perhaps be a little low; but, if it is, the return is low also, as £15 an acre is less than half the yearly return procured from some of the water lands at Edinburgh."

In addition to this, we give copy of a letter from Mr. Cox, superintendent of the drainage near Wisbeach, to a gentleman here who has taken much interest in the subject:—

"Tydd St. Mary's, Wisbeach,  
10th September, 1872.

"In reference to lands taken from the sea, about 5,000 acres have been reclaimed here in little less than thirty years, at a cost of from £12 to £25 per acre, and has been sold from £50 to £70. It grows first-class wheat, beans, potatoes, and clover.

"Not knowing the part you name (Clontarf and Booterstown strands), I cannot tell how much it is like this. As soon as it grows grass it is ready to enclose. Ordinary spring-tides flow near 20 ft., neaps about 12 ft. We like the land to be about 3 ft. above neap tides. We have a heavy sea here; require to be very stout, and kept in good repair. I know Mr. Higgins well; we have met here and at Sunk Island."

The government, by building piers, dredging out fishery harbours, reclaiming waste lands and slob, and then selling to recoup the cost, can add much to the material prosperity of the country. We have had commissions enough before and since the Union, but all the governments hitherto have thrown the reports into the waste-basket or the pigeon-holes of the offices, instead of carrying them out.

K.

## HOME AND FOREIGN NOTES.

**A COUPLE OF USEFUL HINTS.**—Very often a screw hole gets so worn that the screw will not stay in. Where glue is handy, the regular carpenter makes the hole larger and glues in a larger plug, making a nest for an entirely new hole. But this is not always the case, and people without tools and in an emergency often have to fix the thing at once. Generally leather is used, but this is so hard that it does not hold well. The best of all things is to cut narrow strips of cork, and fill the hole completely. Then force the screw in. This will make as tight a job as if driven into an entirely new hole.—Another hint of a similar character may be useful. One often desires to put a staple into a block of stone. The hole is made, the staple inserted, and lead melted and run in. But unless the hole is made with the bottom larger than the top, the lead will in time work out, if there is much jar or side strain on the iron. Besides, the lead itself is liable to some compression, which admits of looseness, especially after being subjected to very hot fires. A much better article is sulphur. If this be melted and poured in around the staple instead of lead, it makes a much more durable job. Besides, it is often more easy to procure sulphur than lead, as every store keeps it that deals in generaliety.—*American Builder.*

**THE CHANTREY BEQUEST.**—The obituary of this week records the death, on the 3rd inst., of Lady Chantrey (born Wale), widow of Sir Francis Chantrey, in the eighty-eighth year of her age. This is an event of great importance to the Royal Academy, as, in accordance to the will of the sculptor, a sum amounting to about £3,000 a-year falls to this institution, after payments of £300 to the President, and £50 to the Secretary, of the Academy. The remaining income will have to be expended, under the direction of the President and Council, in the purchase of works of fine art in painting and sculpture, of the highest merit, executed in Great Britain, such purchases to be made solely with reference to the intrinsic merit of the works, which may be by artists of any nation, and with an express prohibition against giving orders or commissions beforehand. The sum is not to be allowed to accumulate more than five years. The works purchased are to be shown in the Royal Academy Exhibition, or other important public gallery, and to form a public national collection of British Fine Art in Great Britain. The testator

expressed his confident expectation that the Government or country would provide a suitable building or accommodation for the preservation and exhibition of the works as the property of the nation, "free of all charges whatever on my estate." The Academy is expressly forbidden to apply any part of the estate to the acquisition of a receptacle for the works so obtained, except temporarily. The more important clauses of Chantrey's will form Appendix No. 9 to the Report of the Commission on the Royal Academy, 1863. Chantrey died November 25, 1841, and, besides the above more important bequests, he directed that his body should be interred in a vault he had built in the church at Norton, near Sheffield, in which place he was born, April 7, 1781. Also he bequeathed to the clergyman of Norton £200 per annum, "expressly with a view of having my tomb preserved from destruction," subject to a payment of £50 per annum to the schoolmaster of the parish, who shall personally instruct ten poor boys in reading, writing, arithmetic, &c., "so long as my tomb shall last"; and, from the same sum, £10 per annum each to ten poor persons, parishioners of Norton; the residue of the £200 to go to the clergyman. See 'Recollections of Chantrey,' by G. Jones, R.A., 1849. We wish the Royal Academicians joy of their new trust.—*Athenaeum.*

Demolition under the name of restoration seems to be carried on at least as much in France as in England. A great outcry is at present being raised by all archæologists and veneration of old Gothic work in France, concerning the so-called restorations at the beautiful Norman cathedral of Evreux. It appears that the restoring architect has already destroyed a portion of the thirteenth-century nave, and positively proposes to pull down the remainder in order to rebuild it in a different style. Considering that modern architecture at best can only present us with a feeble and lifeless imitation of ancient work, it is surprising that any architect dare venture to destroy monuments in which the life and thought of past ages still beats.—*Academy.*

**THE PATENT LAWS.**—At the monthly Scientific Meeting of the Royal Dublin Society, on Monday evening next, we perceive an interesting paper will be read by Mr. J. J. Fahie, on the existing British Patent Laws, and the reforms likely to be effected therein by the Government during the approaching session of Parliament. The English Lord Chancellor has already notified his intention to bring in a bill to improve the present system to such an extent that, though it may not please some, will give general satisfaction.

We understand that the Austrian Government have completed a contract with Mr. Grubb, of this city, for the construction of an immense telescope, at a cost of £8,000, for an observatory at Vienna. The process of making the telescope will take four years; and buildings for the purpose will be erected in Rathmines upon land taken there. It is said that the American Government are also in communication with Mr. Grubb for another telescope.

**DOWNPATRICK.**—The first prosecution instituted in the Downpatrick Union under the Public Health Act has been heard at the Killyleagh Petty Sessions. Robert Madine, a butcher, was summoned at the suit of the guardians, acting as the sanitary authority, for keeping an offensive slaughter-house. The executive sanitary officer prosecuted, and produced the dispensary medical officer and the sub-sanitary officer, who proved that the defendant's slaughter-house was generally in a state injurious to the locality. The magistrates decided on adjourning the case for a fortnight in order to allow defendant an opportunity of making such structural works as were required. At the meeting of the Board of Guardians on Saturday, a committee consisting of thirteen guardians and five ratepayers was appointed to inquire into the sewerage and water supply of the town, with power to employ professional assistance if necessary.

## TO CORRESPONDENTS.

**AN OLD SUBSCRIBER.**—A letter will reach you. We have no intention of making our Journal the medium of explanations that can do no good, though we agree that the matter ought to be publicly known. If not satisfied with our answer, you can write to the hon. sec. of the Architectural Association.

**O.**—The above answer will equally apply to your query, in respect to which a private letter also has been forwarded.

**M.D.**—See Professor Cameron's newly-issued work. You will find what you seek in its pages.

**ROUND.**—It has been stated that a Mr. George Ensor was the architect of the building known as the Round Room. We are not in possession of any particulars of his life. A Mr. John Ensor, a Dublin architect, practised in this city towards the close of the last century, and lived in Charlotte-street. It possibly may have been him.

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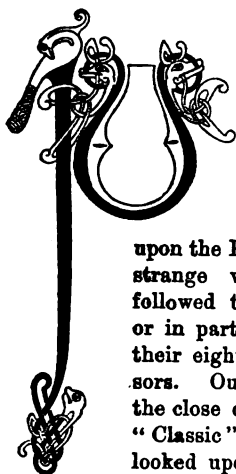
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# The Irish Builder.

VOL. XVII.—No. 363.

*The Literature of Gothic Architecture in Ireland.*



ST before the close of the last century, and indeed including some years in the present century, our native writers who touched upon the Pointed style indulged in strange vagaries, whether they followed their own sweet fancies or in part adopted the opinions of their eighteenth-century predecessors. Our architects of note at the close of the last century were "Classic" to the back bone, and looked upon the Gothic as a most outlandish style, not fit to be adopted either for civil or ecclesiastical buildings; and most of them held to this opinion, despite of the numerous examples of the Pointed style studding every county in Ireland.

Gandon and Cooley, our adopted architects, were clever practitioners, as their works at this day evidence; and Thomas Ivory, although a self-taught architect, has given us some commendable specimens of his architectural taste, which, considering the time and the circumstances of his practice, redound much to his credit. Richard Castles and Robert Mack—the former in the Duke of Leinster's mansion (now the Dublin Society's House) and the Lying-in Hospital, and the latter in Powerscourt House, William-street—gave us, in addition to their other works, proofs of their constructional and artistic taste. The architect of the Rotundo, whoever he was—whether George or John Ensor—left us a good memorial of his taste; but these last-named architects, like the former, were essentially Classic, and none of them, as far as we are aware, ventured a sketch in favour of the Gothic style, which was, of course, in their day out of fashion and ostracised.

Francis Johnston, the founder and first President of the Royal Hibernian Academy, an undoubtedly clever architect of the Classic school, though belonging in part to the last century, yet his principal works belong to the present century; he was our first native architect of note who attempted the Gothic as well as Italian and Grecian styles. His partial success in Gothic design may be studied in the Castle Chapel, Lower Castle Yard; the chapel to the infirmary of the South Dublin Union Workhouse (formerly the Foundling Hospital); and the entrance-gate to the Royal Hospital, Kilmainham, first erected at the entrance to the old Military Road at Barrack (now Victoria) Bridge, which gateway was subsequently removed to its present site. It was Johnston's efforts, we believe, that first led to the awakening in favour of the Pointed style in this country; but none of the architects we have named contributed anything with the pen to the literature of Gothic Architecture, and very little otherwise.

The late Sir Richard Morrison and his gifted son designed several lordly mansions throughout Ireland, some in the Grecian and several more in the Elizabethan and Tudor styles, and betimes in a union of styles; but neither the father nor the son ever professed to be Gothic architects. While still a young man, Sir Richard Morrison contributed to the literature of his profession by publishing a work of designs, with a short sketch of the rise and progress of Architecture.

Towards the end of the second decade of the present century, the Royal Irish Academy offered a prize for a work on "The Origin and Progress of Gothic Architecture, with Reference to the Ancient History and Present State of the Remains of such Architecture in Ireland." The result of the Academy's invitation was the production of an essay by Thomas Bell, accompanied with lithographs drawn on stone by the author. The lithographs are rather poorly printed, though the letterpress is good enough. This work of Mr. Bell's has been little noticed by subsequent writers on the subject of Gothic Architecture, though it deserves to be, for more reasons than one. It appears that the work, which was published in the year 1828-9, was submitted while in manuscript to Francis Johnston by the late J. J. Mulvany, R.H.A., with a wish to befriend the author. On returning the essay, after its perusal, to Mr. Mulvany, Francis Johnston accompanied it with a note saying that Mr. Bell's essay had his full approbation, and that as far as his (Mr. Johnston's) local knowledge extended, the work was one of strict fidelity and correct information on the subject of our ecclesiastical buildings. Whether at this date of the progress of the Revival the opinion of our native architect of Mr. Bell's performance can be endorsed, it is almost needless to ask. There were little available works bearing upon the principles of Gothic Architecture in the early part of this century, and the few there were treated more on the historic and antiquarian portion of the subject than on the principles.

Francis Johnston's knowledge of Gothic Architecture and design was, perhaps, as respectable as any contemporary architect at the time; but he did not travel much, as far as we know, or study the character of our ecclesiastical structures on their sites, like other subsequent architects of his country.

We ought not to omit the name of James Cavanagh Murphy, a rather voluminous author and architect, belonging to both the present and last centuries. Mr. Murphy, in addition to writing some works on Portugal and "Arabian Antiquities" in Spain, wrote a book towards the close of the last century on the "Principles of Gothic Architecture," illustrated from the designs of the Church of Batalha in Portugal, with an historical and descriptive account of that famous structure. This work professed to be translated from the Portuguese of Father Lewis de Sousa, and prefixed was an introductory Discourse on Gothic Architecture. It appears that Mr. Murphy's work owed its appearance to the taste and munificence of the Right Hon. William Conyngham. Mr. Conyngham visited Portugal, and the structure alluded to; and on his return to Ireland, meeting with Mr. Murphy, who was a young man at the time, advised and assisted him in undertaking a visit to Portugal for the sole purpose of illustrating and describing it.

In his introductory discourse, Mr. Murphy

gives his ideas to the world respecting the origin of the Gothic arch. They may, certainly, up to the time be credited with a bold originality, if nothing more. It may be worth while to quote Mr. Murphy's views as a preliminary to other of our countrymen's views on the same subject. He says:—"If the pointed arch be considered detached from the building, its origin may be long sought for in vain, and indeed I imagine this is the reason it has eluded the researches of so many ingenious men; but on the contrary, if we examine it in a relative view, as a part in the composition of the whole, it will become more easy to account for its form, or that of any other component part. If we take a comprehensive view of any of these structures, externally, we shall perceive that not only the arch, but every vertical part of the whole superstructure terminates in a point. And the general form, if viewed from any of the principal entrances (the station from whence the character of an edifice should be taken) will be found to have a pyramidal tendency. The porticoes of the first storey, whether they be three or four in number, are reduced to one at the top, and this is sometimes crowned with a lofty pediment, which might more properly be called a pyramid, as we see in the transept front of Westminster Abbey and York Minster. If we look further in a direct line with its apex, we frequently see a lofty spire or pyramid rising over the nave and transepts. Each of the buttresses and turrets is crowned with a small pyramid. If niches are introduced they are crowned with a sort of pyramidal canopy. The arches of the doors and windows terminate in a point, and every little accessory ornament, which enriches the whole, has a pointed or angular tendency. Spires, pinnacles, and pointed arches, are always found to accompany each other, and very clearly imply a system founded on the principle of the pyramid."

After some more observations, in which he endeavours to prove that the pyramidal form actually exists throughout the component parts, and that the general disposition of the building approaches as near to it, at least, as the ordinance of a historical painting, Mr. Murphy concludes:—"It is in vain, therefore, that we seek its origin in the branches of trees, or the intersection of Saxon or Grecian circles, or in the perspective of arches, or any other accidental concurrence of fortuitous circumstances. The idea of the pointed arch seems clearly to have been suggested by the pyramid, and its origin must consequently be attributed, not to accident, but to ordination."

Mr. Thomas Bell, whose essay we have alluded to, says in his Preface:—"According to some writers the term 'Gothic Architecture' has been exclusively applied to the Pointed style; according to others, this name is esteemed too degrading and barbarous, and therefore when this style is alluded to by them the appellation is new modelled, and changed into the term of 'English Architecture.'" The author's opinion, as will be seen hereafter, differs from both: he imagines that the term "Gothic" involves no inconsistency, however applied, to the architecture of the middle ages—that is, from the early corruption of the Roman Architecture to the utmost refinement of the more modern Pointed Order,—and accordingly he has in the ensuing treatise extended the term as a general name to both."

Mr. Bell accepted the opinion of Mr. Barry, our celebrated painter and countryman, to strengthen his own opinion relative to the origin of Gothic Architecture; but he confesses it was not until some time after he had accepted Mr. Barry's opinion as his own that he became aware that these opinions (Mr. Barry's) had already been appealed to by another of our countrymen, Dr. Mathew Young, Bishop of Clonfert, and a member of the Royal Irish Academy, in the last century. In the Transactions of the Academy there is an essay by Dr. Young on "The Mathematical Proportions and Properties of the Gothic Arch, with Diagrams."

We must stop at this point for to-day, but we shall return to Mr. Bell's volume, and other volumes, for the purpose of leading to a comparison between them and the works published at the present hour. There is, indeed, a vast amount of difference between the Gothic architects and the writers on Gothic architecture at the commencement of the century and the present. A comparison of the treatise of Mr. Bell, with that just issued by Mr. Richard Rolt Brash, on the "Ecclesiastical Architecture of Ireland," will show in what an advanced state is our knowledge of the rise, progress, and practice of the Gothic Architecture of the past in this country.

#### MANUAL OF PUBLIC HEALTH FOR IRELAND.\*

THE Manual of Public Health for Ireland just issued is the necessary sequence to the passing of the Irish Health Act of last year. Such a work has always been more or less requisite, but, under the changed conditions of late years—by which public health has become a most important question for State legislation, in view of the national welfare,—a work or works of the kind are indispensable. The present volume is not only a work on general matters relating to the public health, for the guidance of sanitary authorities and their officers, but it is also a work bearing upon the personal and, we might say, the moral duties of every individual member of the commonwealth. The book is the joint production of Thomas W. Grimshaw, M.A., M.D.; J. Emerson Reynolds, F.C.S.; Robert O'B. Furlong, M.A., Barrister-at-Law; and John William Moore, M.D., M.Ch., all of this city, and each well known in their respective spheres. Compared with the recently-published Manual of Public Health for England, it differs in some particulars; but, on the whole, it is nowise inferior, nor does it omit much that is essentially necessary. Though the English manual is applicable and useful to a certain extent in connection with Irish sanitary administration, yet there is a wide difference between the regulations affecting the local sanitary authorities and officers in Ireland and those in the sister kingdom; and the present work supplies the want.

The Irish Manual opens with a good summary and a capital index of the Irish sanitary statutes—the latter well arranged in alphabetical order for ready reference. The general sanitary acts are also arranged in chronological order, shewing those that were passed for Great Britain only, and those in which this country is included. But, apart from the subject having only a strict local bearing, there are well-digested chapters on the following:—The Sanitary Duties of Authorities and Officers; Vital Statistics; the Conditions necessary to Public Health; Preventable Diseases; Etiology of Disease; Food; Water Supply; Examination of Water; House Construction; Drainage and Sewerage; Air and Ventilation; Hospital Accommodation; Disinfection; Climate and Meteorology. On

most of the above subjects, our readers are aware, we have devoted a series of articles, extending over nigh a twelvemonth. The chapters on Vital Statistics and Statistics of Births and Deaths bear evidence of being carefully prepared, and are extremely interesting; equally so is the chapter on Population.

The following extract from the chapter on the last subject will not be out of place:—"Increase of population depends on an excess of births over deaths, and on immigration. It is more or less rapid according to the prosperity of and the facility of obtaining the means of subsistence amongst a community. Towards the close of the last century Malthus laid down the proposition that *population, when unchecked, goes on doubling itself every twenty-five years, or tends to increase in a geometrical ratio*—that is to say, the human race may, under the most favourable circumstances, increase in a ratio corresponding to the series of numbers 1, 2, 4, 8, 16, 32, 64, &c. The truth of this proposition is accepted by the foremost statisticians of later years. Malthus also arrived at the conclusion that, the increase of food, depending on the fertility of land, its reclamation, and improvements in agriculture, advanced only in an arithmetical progression, or in a ratio corresponding to the series of numbers 1, 2, 3, 4, 5, 6, &c. This proposition has proved to be as well founded as the former. But Malthus, in venturing to theorise on the appalling results which would follow the action of these laws, overlooked the element of *free trade*, which enabled a nation to draw upon the fertility of the world at large for the sustenance of its own increasing population. In consequence of this the true philanthropy of the man was lost sight of, and he was most undeservedly looked upon as the enemy of the poorer classes."

The late John Stuart Mill (a profound thinker, it must be acknowledged) was a full believer of the views of Malthus on population, as he was also a believer in the views of Locke, Hume, and Smith, in regard to money, and those of Ricardo on rent. Malthus has been badly used; and theologians and popular agitators may say what they will, but it is clear that if the doctrines of Malthus were studied a little more closely in this country, good would follow. Malthus demonstrated simply that, an increase in the means of subsistence is the only true criterion of a permanent and beneficial increase in the numbers of the people, and that the danger in every country is an excess of numbers as compared with the means of subsistence, and that were populations not kept down by means of moral restraint or prudence in matrimonial connections, vice, want, and misery must result.

The Scripture may be quoted as an argument against Malthus; but "increase and multiply," &c., is a poor form of proof. There is no country in Europe, perhaps, which has suffered more from early and imprudent marriages than Ireland; and though it may be natural, and is natural for men and women to marry, some forethought should be exercised. Every intelligent individual ought to be conscious of his position and means of subsistence, and his power of supporting a family; and, if not a crime, it is certainly a great fault to bring others into misery as well as ourselves. The question of population is a question that bears much upon the public health, and the chapter upon it in the book under notice is not out of place.

The chapter on "The Development of Man" will be found interesting, followed by a very valuable one on "Zymotic Diseases," in which every aspect of the question—cause, effect, and prevention—is treated. "It is a notorious fact," says this Manual, "that old houses in old streets of old towns are favourite haunts of zymotic disease, and there are other reasons for this beside the age of the houses, for it is here that are found poverty, hunger, and dirt, combined with overcrowding—all being promoters of zymotic disease. A comparatively new house may, too, from

fault in original construction, want of drainage, and neglect of repairs and cleansing, become as bad as any old house." True, but it might also have been stated that nearly two-thirds of the cheap speculative builders' houses "run up" at the present hour, are even worse than the old houses, for the drainage in many of them is mere make-believe, the materials wretched, and the work "scamped;" consequently in a short time the houses become unhealthy and nurseries of disease. In the suburbs of London on every side, many streets of new houses are erected over "shoots"—low ground that has been filled up with the scavage of the city. Added to this, the foundations are constantly dug out for the sand, not alone for the purpose of making mortar for the buildings in question, but to sell. This practice has been resorted to in this city also to some extent where sand is discovered; and we could point to several lines of houses in this city and suburbs which were built upon the "shoots" of the present and old Corporations of this city.

In treating of enteric fever the Manual says:—"The evidence that enteric fever is the direct product of food, drink, or air contaminated by the presence of decomposing sewage matter, or by the miasma exhaled thereby, is, if possible, stronger than the evidence of the production of typhus by overcrowding; because in the case of the latter many other causes favouring the spread of zymotic diseases co-exist, but, with regard to the former, nearly all other causes, except the presence of decomposing matter, can be generally excluded. While typhus is a disease almost exclusively belonging to the poor and badly-fed, enteric fever makes its appearance in all ranks of society. Careful inquiry almost invariably discovers a pythogenic origin." A few examples are given to illustrate the above statements.

In treating of the diseases called constitutional, caused or promoted by general unhealthy condition, Scrofulous Affections and Phthisis are dwelt upon, and the table compiled by Dr. Pollock is given, taken from the Report of the Hospital for Consumption and Diseases of the Chest, Brompton. As many cases of pulmonary consumption owe their origin to the constant inhalation of impure air, the table will be of value. It appears that among 3,714 men at the hospital, more than one-half had followed indoor occupations; and the females, who amount to 2,418, may be said to be all at indoor employments. We will quote a few of those connected with the building profession. Carpenters are considered to have a healthy employment, yet it appears from the list that 295 suffered from phthisis [query, what space of time does the report cover?]; bricklayers, 109; painters, 105; smiths, 89; labourers, 539 [does this much include building, agricultural, and general labourers?]; mechanics, 176; [what sort, or of what branch?]; while the shoemakers in the list are put down at 171, the weavers are only 11, the lowest but one in the list, the lowest being the butchers, which are put down at 3. The weavers are essentially an indoor class of workers, and in the east of London a large number of them work in rather small and ill-ventilated rooms. Why they should suffer less from phthisis than other branches named, it is not easy to understand, or why butchers should figure least in the list it would be interesting to learn, for their employment is not a very healthy one. They are, however, better fed, or consume more animal food, in general, than the members of other trades. Clerks and shopmen also rank high in the scale, being 394, while the tailors are only 145, a much less number than the shoemakers. Both the shoemakers and tailors are a sedentary occupation, and the sitting position of the tailors with their legs crossed under them is, we think, a more unhealthy position than that assumed by the working shoemakers; the latter, however, suffer from the pressure of the last against the chest. It is said, relative to this table, that it is apparent that phthisis prevails in exact proportion to de-

\* "Manual of Public Health for Ireland." &c. Dublin: Fannin and Co. London: Longmans and Green. 1875.



degrees of confinement of the sufferers. We are of opinion that it does; but the table quoted does not, we think, bear out the statement.

Dr. MacCormac, of Belfast, in his work on "Consumption and the Breath Re-Breathed," has spoken of the causes of phthisis, and in allusion to his views the Manual says:—"The influence of closeness of air in the production of phthisis is so great that Dr. MacCormac, of Belfast, has supported the view that this is the cause of phthisis, and has further argued that the inhalation of air which has already been respired is the sole cause of the disease; and further, that the noxious element in the respired air is the carbon of the carbonic acid therein. While we do not go quite as far as Dr. MacCormac, we admit that the most potent single cause of phthisis is the constant inhalation of impure air."

The chapters on House Construction, Air and Ventilation, Water Supply, and Sewage and its Treatment, contain some well-condensed information, which will be found most useful to those connected with sanitary boards, whether in the character of members of these boards or as medical or ordinary sanitary officers.

In another paper we may pass under review some of the statements made in these last-named chapters. For the present, however, we may conclude by saying that the Irish "Manual of Public Health" is a well-compiled and well-digested volume, which does credit to its joint authorship. It may be objected that it took cognisance of matters outside its province, and that some of the chapters were devoted to subjects of rather an abstract nature. We do not think so; all the questions discussed have a bearing on the important question of the Public Health.

#### WENCESLAUS HOLLAR, AND HIS WORKS.

At present there is on exhibition at the Burlington Fine Art Club, Saville-row, London, a remarkable collection of prints—topographical, architectural, portraits, and illustrations of natural history, and of sundry other kinds. This selection of the celebrated Hollar's engravings comprises 136 plates, though the artist during his lifetime is stated to have produced nearly 8,000. Visitors from this city to London, having a love for the fine arts, or fondness for studying well-executed old prints belonging to a school that has almost passed away, would do well to look in at this exhibition. The works of Hollar are becoming more prized each year, and every particular of the life and career of the artist view with increasing interest. Alas! that the poor engraver should fall upon such unlucky times, and die such a sad death. Hollar was born at Prague in 1607, and was educated for the profession of the law, but abandoned it for the more congenial pursuits of drawing and engraving. It is stated that he obtained instructions from Mathew Marian, an engraver, who worked for Vandyke and Rubens. At the outset of his career Hollar travelled much on the Continent. In 1636, Howard, Earl of Arundel, met him at Cologne and took him under his patronage and brought him to England. One of his first performances in London was the "Prospect of Greenwich." Some time after he drew portraits of the Royal Family for the great plate of the Entrance of Queen Marie de Medici into England, on a visit to her daughter Henrietta Queen of England. During the civil war Hollar was taken prisoner by the parliamentarians and deprived of his liberty for some time, and on his release went to Antwerp. On his return to England he resumed his labours, and in 1652 he executed the etchings for Dugdale's "Monasticon" and his "History of St. Paul's," besides a large number of other views in the sister kingdom. In fact, nothing seems to have come amiss to Hollar—portraits, maps, landscapes, sea views, butterflies, shells, &c., each and all of which were

well executed. The London publishers appear to have treated poor Hollar most shabbily, and he was paid by some of them at the rate of only fourpence an hour. The Great Plague in London in 1665, appears to have stopped the sale of his works and also carried off his son. He married a second time, but till his death remained miserably poor, though his talents, if fairly remunerated, should, even in his time, have brought in a respectable income. The great engraver died in Westminster in 1677, at the age of 70, and it is stated that while he lay on his death-bed the bailiffs were in waiting in his house with an execution. What must have been the feelings of the poor dying artist, when in his last illness he pittingly appealed that the bed upon which he lay might not be taken from under him until he breathed his last. From the great interest attaching to the sad and chequered life of poor Hollar, and his wonderful abilities as an engraver, we are sure that the exhibition of his works at Burlington Fine Art Club will bring many visitors from all walks of life.

#### WEXFORD WAKING UP.

THE ratepayers of other cities and towns in this island as well as Dublin have begun to open their eyes, and to ask themselves, "What are we getting in return for our money?" The oppressed ratepayers of Dublin are conscious enough of what they have got for their money, and what they are still likely to get, if local rule is allowed to move on in the same groove it has moved in for the last twenty years.

At a numerous-attended meeting of the inhabitants of Wexford, the following resolution was adopted a few days ago:—"That we, the ratepayers of the Borough of Wexford, feeling that we are excessively taxed, and believing we do not derive advantages corresponding to that taxation in the improvement of the town, are unanimously of opinion that a thorough investigation should be made into the receipts and expenditure of the funds collected for borough purposes."

There has been for long years a need of a "thorough" investigation into the receipt and expenditure of funds collected for borough purposes on the banks of the Liffey, as well as on the banks of the Slaney.

#### THE DUBLIN FIRE BRIGADE SERVICE.

THE twelfth annual report of the Chief of the Fire Brigade department of the Dublin Corporation, printed by Mr. John Falconer, Sackville-street, has been issued. It shows that during last year the total number of alarms received was 229, of which 9 were false; 141 proved to be only chimney fires; 79 were fires, of which 2 resulted in total destruction of buildings, 11 in serious damage, and 66 slight. Appended is the usual tabular statement, shewing the number of fires in each month, locality, number of house, owner, trade, occupation, and other particulars connected with the service—insurance, damages, &c. Dr. Nedley, the surgeon of the Fire Brigade, reports that there were no cases of dangerous disease in the Brigade during the year, though the men suffered much from coughs, feverish colds, sore throats, and other complaints brought on by exposure in all weathers. The statistics shew that only one-half per cent. per day were on the sick list, whilst that of the Metropolitan Police has been 3·45, and that of the regiments in our garrisons 5·20. Mr. Lambert, the veterinary surgeon, reports the horses employed as being in good health and condition, and that they are now shod on the Charlier system. Mr. J. Robert Ingram, the Chief of the department, states that all the appliances of the Brigade are in good order. The Metropolitan Police Force is thanked for its kind assistance. The expenses during the year—turning out to fires, horsing, engines, &c.—amount to £72 19s. 6d. The amount recouped under sections 9, 10, Fire Brigade

Act, was £81 7s. 2d. The sick fund, which has been in existence since 1862 till the present, amounts to £694. The total of wages paid to men of Fire Brigade from 1st January, 1874, to 31st December in same year, amounts to £1,082 14s. 9d.

The expenditure is not very large, but, apart from the report before us, we are bound to add that there is need for a still more efficient Fire Brigade service in Dublin. Recent fires in this city made it painfully evident that the Fire Brigade service in Dublin is inefficient compared with that of London and other cities in the sister kingdom. In saying this, however, we are bound to add that the fault does not lie with the Chief of the department, as he has been zealous enough in the discharge of his duties, and anxious enough to perfect the organisation if the means were at his command.

#### CREMATION.

THE movement in favour of cremation appears to be gaining ground, despite of theological and sentimental opposition. Sir Henry Thompson's paper, published in these pages some months ago, decidedly gave the first real impulse to the system. We must confess that, on sanitary grounds, we are in favour of cremation as against the present injudicious and unhealthy system. The old method was well enough at one time in a thinly-populated country; but, considering the state of our crowded cities and towns at the present day, and seriously considering the question of burial in view of the future, the preservation of the public health and the maintenance of an unpolluted water supply demand that the present method of interment should cease.

At the London Institution last week, Mr. Armitage Bakewell (not a bad name for a cremator!) delivered an able address upon cremation to a large audience. He commenced with an exhaustive examination into the origin of the process, which he conceived to have been practised in times long anterior to history, or even tradition, and to have sprung from the fire-worship of the Persians, though not developed by them. But cremation seemed to have died out towards the end of the fifth century, and as the funeral fires of Rome were extinguished, the dark ages began. It had now become a pressing social question, not from any materialistic hardness of heart, or that they were slaves to an exacting utilitarianism, but rather because they had awakened to the importance of the Government reports of 1850-51 upon extramural cemeteries, which, even then, were fast becoming intermural, and from an absolute sanitary necessity. He therefore trusted that a Government pledged to every sanitary reform, and with only a headless opposition, would not fear to foster this idea, concluding by answering the chief objections urged against this method of disposing of the dead.

#### THE WASHINGTON STICK.

THERE is at present in the possession of Mrs. B., Rostrevor, a walking stick presented by General Washington, after the battle of Bunker's Hill, to Captain Thomas Woolsey, who served under him. After his decease it passed into the hands of his sister, Elizabeth Woolsey, afterwards Mrs. Stuart, of Corn Market, Belfast. Previous to her death she presented it to her cousin, Mr. John Woolsey, of Clounagh, Portadown, Mrs. B. being his daughter and last surviving relative. The stick is of the usual full-sized dimensions, and is made of a hard dark wood. The head is mounted three inches deep with encased gold; on one side of the mounting is a raised figure in silver (Britannia, perhaps), with a shield on her arm raised over her head; on the other side is a corresponding figure, also silver, of Columbia, or otherwise emblematic of the transition state of America. This is a rare and authentic relic of the Great General. S.

## PUBLIC RIGHTS AND PUBLIC NUISANCES.

## TWENTY-SECOND ARTICLE.

## ADULTERATION OF BUTTER AND CHEESE.

It is scarcely necessary to describe what constitutes butter; but in describing what constitutes its adulteration it may be as well to say that butter is the fatty part of the milk of animals, separated by the process of churning. The milk of cows is composed of three ingredients—the cheesy portion or curd, the whey or watery part, and the butter. The quality and quantity of butter contained in cows' milk depends to a great extent on the nature of the pasture, and indeed it may be added it is also dependent on the breed. The ordinary amount of butter produced from a gallon of milk varies from three to four ounces.

From recent analyses, Mr. Way has found that ordinary butter contains—of fat, 82.70; caseine, 2.45; water and a little salt, 14.85. Mr. Wanklyn states he has found in good fresh Devonshire butter, of fat—82.7; salt, 1.1; water and a trace of organic matter, 16.2. In another analysis—that of a sample of Normandy butter, he found—of fat, 82.1; salt, 1.8; water and a trace of organic matter, 16.1. Butter is much adulterated with water, dripping, mutton and other fats.

For some years past, particularly in cities, butter has become a very dear, and consequently a valuable article, and it is therefore important that, with its increased cost, its goodness should not decrease. There ought to be from 82 to 83 per cent. or more of real butter fat in genuine butter. The good market that exists at present for butter affords a temptation to extensive adulteration by the addition of water or salt, and water for butter fat. Water may be detected in a common way by observing the degree of wetness in butter when squeezed, and dripping or mutton fat may be also discovered by the presence of small white particles being visible in the newly-cut surface of the butter.

About ten or twelve years ago the consumption of butter in London was estimated at about 15,000 tons annually. About 400,000 cwt. of foreign butter were annually imported at that date from Holland, Belgium, and France; and from 100,000 to 120,000 cwt. of Irish butter was annually sent to Portugal and Brazil. We cannot say at present whether the estimated trade in Irish butter has increased, but the demand for Irish butter in England seems to be as great as ever; and we fear that the Irish butter has got a bad name in some places in England, from its being doctored before put upon the English market, or other butter sold in its name.

It will be interesting to go back to the commencement of the present century to see how the dairy produce of Dublin stood. In 1802, according to Mr. Dutton, in his "Observations" on Mr. Archer's "Statistical Survey of Dublin," there appeared to have been a great deficiency in the number of dairy cows. The average quantity of milk produced each day by a dairy in Dublin was eight quarts in summer, and five in winter, each cow. Now this was an uncommonly low produce compared with the produce of London dairies at the same period. Mr. Dutton wished that the dairymen could be induced to give their cows hay-mash or hay-tea with their food, as he thought it would have a good effect. He also recommended potatoes, as they were at that period at a low price, and thought by their use the milk and butter would be of a richer quality than that produced by grains or mash. Dairymen, however, at that period, as well as now, were more anxious for quantity than quality. After speaking at some length on the system of feeding and keeping of cows, and making some suggestions as to their breed, Mr. Dutton concludes his observations on the subject, which observations have their value still. He says:—"As the Dublin milk is wretched trash, it has often surprised me that those who have yards do not keep a cow; she could be easily

fed with grains, small potatoes, hay, and very frequently refuse vegetables. The winter butter of Dublin is also in general bad, owing chiefly to putting too much hot water to the milk whilst churning, to hasten the process, and also to conform to the taste of those who think no butter nice but that which is white." The same system of churning still exists in Dublin; but we believe yellow butter is more preferred than formerly.

Many of the Dublin dairies are still kept in as primitive a state as they were half a century since, and as dirty; and even if no adulteration took place, the milk and butter, from the foul surroundings, are both spoiled and have a bad taste, and, of course, are rendered unfit for general use. A dairy requires a high roof and free ventilation, and its site, if possible, should be on an elevated spot. The proximity of pigstyes, sewers, dunghills, and other offensive fixtures or smells should not exist; but how many of the dairies of this city are free from the above nuisances? Coldness is essential in summer, and an equable temperature in winter, which could be kept up by stoves with flues, the degree of heat being regulated by a thermometer. The milk should be brought direct from the cows, without being exposed to the outer air. No substances except the milk, butter, and newly-made cheese should be brought into the dairy. The floor and shelves should be of stone or slate, and washed every day; and spilled milk should be immediately removed. In a word, scrupulous cleanliness should be the rule in all dairies.

Professor Cameron, our City Analyst, in a lecture delivered a few days since, said "it was a common mistake to suppose that the white colour and opacity of milk were due to the liquid being a fatty emulsion. It was in reality due to the fact that the fatty globules in milk were invested with a solid cheesy membrane which reflected light. By appropriate treatment all the fats of butter could be extracted from milk, and yet the residue would retain the characteristic appearance of that fluid. Buttermilk, which contained only from 0.5 to 0.7 per cent. of fats, was yet a perfectly white liquid. The solids in cows' milk never sank below 12 per cent. in the case of town dairy cows, or 11.5 per cent. in the case of farm cows on poor pastures. In Dublin milk of average quality, and when pure, the solids had sometimes reached 13 per cent., and the fats 4.1 per cent."

One of the alleged and, we believe, proved frauds in the butter trade is the putting of mashed potatoes into the butter; gelatine is also said to be used. Should a case of these last kinds occur, the public analyst is advised to test for starch, by means of solution of iodine. Gelatine will be recognised as a nitrogenous substance, and by gelatinising with water and by formation of the well-known precipitate, with infusion of gall nuts. "Granting, then," says Dr. Wanklyn, "that the sample of butter contains not too much water, not too much ash, not too much 'organic matter not fat,' is it necessarily genuine butter? No; it may be partly butter fat and partly extraneous fat. Butter fat is not one chemical compound, but a mixture of compounds. It contains a number of the ethers of glycerine, including some of the commonest and most widely diffused descriptions of fat." It is also added that it contains stearine, oleine, and palmitin, which are well-known ethers of glycerine; and, in addition to these, there is a variety of fats in butter. Our authority concludes on this point—"Although, doubtless, if a chemist were to take the trouble to investigate butter with that especial object, he could hardly fail to come upon good tests to distinguish between a genuine butter fat or a spurious one; there is at present no known method of doing so."

So it appears that, although we can discover ordinary methods of adulteration of butter, still we can be cheated by clever butter manipulators, despite the ability of clever public analysts and the advanced state of

chemical knowledge. This is not at all a cheering or satisfactory state of affairs. The evil can, however, be to some extent remedied by the constant inspection of dairies that supply the home market, and by the strict enforcement of the provisions of the sanitary and adulteration acts. Strict sanitary supervision and heavy and cumulative fines, or, better still, imprisonment without the option of a fine, to all habitual offenders caught in the act or proven guilty of "doctoring" milk or butter, will tend to stamp out the evil.

Butter fuses or melts at a temperature a little higher than the average atmospheric temperature of this country. Butter must not be too hard to melt, or tallow or some other fat may be suspected. On the other hand, it ought not to be too easily melted. Rancid butter is very disagreeable, and butter is prone to get rancid, decomposition setting in and shewing traces of its fatty substances turning into fatty acid and glycerine. A little alkali added, and the application of a high temperature for a brief period, will abate to some extent the rancidity of butter. It is stated that during the siege of Paris, during the late war, the practice of heating butter and other fats for the purpose of sweetening them was much practised. In this country we are aware that the same custom existed, and we believe still exists.

On the subject of cheese there is no necessity to dilate at much length. There is, it may be remarked, a great diversity in the composition of cheeses: some are soft, and keep for only a short time—such are Bath cream and Yorkshire cheeses; Stilton cheese is an intermediate, but Cheshire, Gloucester, and Parmesan cheeses are hard, and are intended for long keeping. Cheese *per se* consists of caseine and fat in variable proportions, water, and some mineral matter, mostly phosphate of lime. The percentages in Cheshire cheese are—of water, 30.4; fat, 25.4; nitrogen, 5.6; ash, 7.1. There is always in the market a large quantity of both good and badly-made cheese, and good and bad tasted butter. It is not an indispensable article of diet, and the quantity consumed in this country is small indeed compared with what is eaten in England. Rich and poor in the sister kingdom have it at their meals, and mechanic, ploughman, or carter is equally partial to it. The Irish mechanics or working men, as a class, or the Irish agricultural labourers, do not much indulge in its use. As this is not a cheese-producing country, the price of cheese is above the means of the agricultural labourer. The consumption of cheese in Ireland, therefore, is mostly confined to the middle or upper classes.

Mineral ingredients as well as vegetable have been known to be used to give cheese the fashionable colour. It is well known to be coloured with annatto, which is a vegetable colouring-matter. Instances, however, have been brought to light of alleged cases of poisoning with oxide of lead, said to be used to adulterate the vermilion employed to adulterate the annatto used in colouring Gloucester cheese. There is not yet much knowledge to hand as to the extent of adulteration in the manufacture of cheese. It is believed by some that modes of adulteration have long been in use, but to what extent, our public analysts as well as the general public are in the dark. Cheese rind is looked upon with a degree of suspicion; and, while it is eaten by many of the humble, some of the better classes will not touch it.

The variety of colour and flavour of cheeses result in part from difference in the degree of pressure, length of time in keeping, quantity of salt, and other circumstances, the colouring matter employed included. The colour of English cheese is owing to the annatto, which is added to the milk before coagulation. As in poor milk, so in cheese manufactured for a quick market, the proportion of water is sometimes very large; but if pure water were the only adulterant in milk, butter, or cheese, the public might rest content that, though they ran the chance of being cheated, they stood little chance of being poisoned.

## THE PATENT LAWS.

At an evening scientific meeting of the Royal Dublin Society, on Monday, the 18th ult., Mr. J. A. Fahie read a paper on the Patent Laws, in which he contended that the present laws ought to be preserved, as their abolition would withdraw a powerful stimulus to invention. But the existing system required amendment, and its practice improved. The present machinery was cumbersome and too expensive. There should be a special tribunal for the regulation of all business connected with patents, officers of which should possess legal, technical, and scientific experience, and should devote all their time to the business; the procedure should be simplified and cheapened, and patentees should be compelled to grant licences on reasonable compensation being made. A great impetus would be given to invention by the establishment of a national museum of industry; nor would it be difficult for the Government to furnish it. He himself had seen such quantities of models, instruments, &c., stowed away in nooks and corners at South Kensington that he was certain shiploads of them could be carried to Ireland, and yet the Kensington Museum left full.

Mr. Peyton thought it a pity that of the large surplus derived by the Government from the tax on the brains of inventors, some portion should not be devoted to the founding of a museum in this city.

Dr. Reynolds observed that so far as plans of patents went there was in the Library of the Royal Dublin Society a complete set of plans of British patents from an early date, which were open to the inspection of members or persons introduced by members.

The chairman thought the cheapening of the procedure necessary to obtain a patent would lead to an evil in the form of multiplied useless applications. It was well known that at present a large proportion of the patents obtained were utterly valueless.

## THE CHANDOR LIGHT.

This light is stated to be a new and important invention, and likely to threaten the lucifer trade with extinction. At a *conversazione* recently held at Edinburgh, Professor Archer dilated upon its properties. The apparatus is, in outward appearance, a little tube, three or four inches long, having at one end a revolving button which turns a screw, and at the other a minute angular point of metal, which also revolves, passing over a little orifice in the closed head of the tube. A continuous fuse, formed of a delicate strip of solidified collodion, with a ridge of hardened phosphorus on one of its sides, is slipped into the tube, and, once in position, can be moved upwards by the screw. By the same action which presses the upper end of the fuse against the opening at the top the metal point is turned against the phosphorus, and a small portion of the collodion is thereupon ignited. When the apparatus is affixed to a gas-burner, only a very transient flash is needed for the purpose of ignition, and not more than a seventieth part of the collodion fuse is in that operation consumed. Where, however, the wick of a lamp has to be lit by the same means, a larger proportion of the fuse, the thirty-second part, in fact, is burned. The apparatus is either portable or adapted to the uses indicated. If a lamp goes out, it can be instantly re-lighted by the turn of a screw, instead of by opening the case, removing the chimney, and striking a lucifer match where, perhaps, large quantities of straw are lying about. The collodion fuse is so little liable to be affected by damp that it will ignite after having been immersed in water; and its action has never been known to fail. Being encased in a close-fitting chamber within the tube, it cannot burn beyond the requisite point where its duty is discharged, and the cotton-wick or invisible spirit of gas "starts into light, and makes the lighter start."

## THE ROYAL HISTORICAL AND ARCHÆOLOGICAL ASSOCIATION OF IRELAND.

The first quarterly meeting of the above body was held on the 20th ult. at Butler House, Kilkenny.

The Rev. CHARLES A. VIGNOLES in the chair.

*New Members.*—Right Hon. Lord Emly; Major Leslie, J.P.; Rev. J. O. Bugler, V.G., P.P.; M. P. Howlett, Esq., M.D.; J. T. Reardon, Esq., J.P.; T. P. O'Meara, Esq., M.D.; Thomas Carroll, Esq., J.P.; Edward M. Dunne, Esq.; John Hillery Haire, Esq.; John William Forster, Esq.; Jas. J. Phillips, Esq., Belfast; T. H. Jameson, Esq.; J. Smith, jun., Esq.; George Benn, Esq.

*New Fellows.*—W. J. De Vismes Kane, Esq., M.R.I.A.; John Ribton Garstin, Esq., M.R.I.A.

The Rev. James Graves (hon. sec.) read the report of committee for past year, in which the following passages occur:—

In the report for the year 1870, the first gratifying results of the status conferred on the association by the Queen's Letter constituting it a Royal Society, and conferring the privilege of electing fellows, were placed on record; and a confident hope was expressed that greater stability would be given to its organisation, and its further favourable progress be ensured.

Your committee are glad to state that these anticipations have been amply fulfilled—a test of five years' duration gives a roll of eighty-eight fellows, and five hundred and ninety-seven members—in all, six hundred and eighty-five; whilst a reserve fund has been formed by the purchase, in the names of trustees, of new 3 per cent. Government Stock to the amount of £327 3s. 7d. Your committee trust that the importance of adding to this fund will weigh with many members who, having been subscribers of one pound per annum when the Queen's Letter was granted, have the right to claim their Fellowships on the payment of £2 entrance fee—a privilege of which many have not as yet availed themselves. The treasurer's accounts will show that the general financial position of the association is satisfactory.

The "Journal" and "Annual Volume" of the Association have, by their intrinsic value, won their way so much in public estimation, that when they come into the market they now sell at a price considerably enhanced beyond the subscription in return for which they are supplied to the fellows and members. The fifth part of "Christian Inscriptions in the Irish Language," forming the Annual Volume for 1874, is nearly ready for delivery, and it is hoped that this work will be completed in two more annual parts. . . . .

At the Belfast meeting of the British Association for the Advancement of Science, held in August last, your association was represented, in accordance with the resolution adopted at the previous annual meeting. The Loan Exhibition of antiquities, which, with the indispensable and most efficient aid of the Belfast Naturalists' Field Club, your association was instrumental in forming on the occasion, was visited by large numbers, and proved a great attraction.

Two of the founding fellows of the association have died within the year, viz.: The Right Rev. James Thomas O'Brien, D.D., Bishop of Ossory, Ferns, and Leighlin; and John James, F.R.C.S.I. Bishop O'Brien was one of the original members of the Kilkenny Archæological Society, of which, together with the late Marquis of Ormonde, he was Patron. The late Right Rev. Dr. Walsh, Roman Catholic Bishop of Ossory, was requested also to allow himself to be elected Patron, but although expressing himself as being most friendly to the projected society, he declined the office. Bishop O'Brien, although he never took part in the meetings, yet always felt an interest in the welfare of the society, and to the wise rule which he suggested at its outset\* may be attributed in a great degree the uninterrupted harmony with which its members, recruited from all creeds and parties, have worked together for over a quarter of a century.

Dr. James was not only an original member, but had also served on the committee from the commencement; and when the Queen's Letter was granted he was elected a trustee. Although he never contributed to your proceedings, yet the interest he felt in the welfare of the association was

\* The rule alluded to is as follows:—"All matters concerned with the religious and political differences which may exist in our country shall be excluded from the papers to be read and the discussions held at those meetings, such matters being foreign to the objects of this association, and calculated to disturb the harmony which is essential to its success."

warm and unabated to the last, and his advice in the management of the association was ever valued by your officers.

Amongst the members removed by death your committee have to express the regret felt for the loss of many friends and supporters; of these none stood higher for warm interest in the welfare of the association than the Right Hon. General Dunne. General Dunne contributed a short paper to your proceedings, and he was engaged up to the time of his death in making collections illustrative of the history of the ancient Irish Sept of the O'Dunnes, of which he was the head.

## PRESENTATIONS.

A number of books presented to the library, were laid on the table; they included Russian, Danish, French, and American historical and archæological works, and the transactions of numerous kindred societies in England.

Dean Vignoles presented the printed returns of fifteen days' polling, at the City of Dublin election, which commenced on the 13th December, 1773, the contest having been between Alderman Geale and Redmond Morres, Esq., for the seat in the Irish Parliament rendered vacant by the calling of the Marquis of Kildare (grandfather of the present Duke of Leinster) to the Upper House in consequence of the death of the then late Duke of Leinster. The name and trade or calling of every member of the constituency who voted each day for the respective candidates were set out. Unfortunately the return for the 16th day, which concluded the election, was not forthcoming.

Mr. Thomas Watson, local secretary at Derry, sent for presentation to the museum a small bronze celt, and a large bronze spear-head, with two of the bronze rivets which had been used in fastening it to the handle. They had been found in a bog at a considerable depth, near Down Hill, County Derry.

Mr. Thomas Stanley, Tullamore, presented a pair of bronze rings, joined together. He stated he had been given them, for the purpose of sending them to the museum, by Mrs. Hobbs, of Barnaby House, near Frankford, who informed him that this was one of four or five similar antiques found by her turf-cutters in a bog near her place. They were found in a group together with a vessel filled with the substance called "bog butter," at such a depth near the bottom as associated them with nuts and leaves of hazel in perfect preservation. The staves of the vessel which had enclosed the "bog butter" dropped into mould upon an attempt being made to remove it. Mr. Stanley observed that the bronze object sent was not ring-money; it had been suggested to be part of armour, but he did not think it could be so.

Mr. Weir, principal of Kilkenny College, presented an illuminated manuscript on vellum, brought home from Abyssinia, and given to him by an officer who had been engaged in the expedition against the late King Theodore, in whose palace it was said to have been found. It was stated to contain a passage from the gospels.

## INISTIOGE ABBEY.

Mr. Langrishe exhibited a ground plan of the existing remains of Inistioge Abbey, and the indications which he had found in recent explorations amongst the ruins of the site of the cloisters and other former adjuncts which have long since been destroyed; and he mentioned that some interesting views of the abbey, taken in the last century, were being engraved for the society's "Journal." In the course of his observations, Mr. Langrishe stated that Colonel Tighe was under the impression that his great-grandfather, Sir William Fownes, had built the structure, which had been used as the parish church before the erection of the present church, and which was then dismantled; but it was obvious from the architecture that this was a portion of the ancient abbey, which probably had been roofed in, to serve as a church, by Sir William Fownes.

## LOCAL DOCUMENT OF THE LAST CENTURY.

Mr. Watters said, hearing the name of Sir William Fownes mentioned, he would bring under notice an old document connected with

that gentleman, which served to illustrate the particularity with which public business was discharged in the last century—where an outgoing high sheriff gave an inventory of the court-house furniture, even to the poker and tongs of the grand jury room, and took a formal receipt from his successor. The document was as follows:—

"This Indenture made the Ninth Day of March in the year of our Lord One Thousand Seven Hundred and Fifty Six, between Sir William Fownes, Bart., late High Sheriff of the County of Kilkenny, of the one part, and Chambre Brabazon Ponsonby, Esq., present High Sheriff of the said County, of the other part, Witnesseth that the said Sir William Fownes, late High Sheriff, has delivered and sett over unto the said Chambre Brabazon Ponsonby, present High Sheriff, the bodies of the several persons following, being prisoners in the Gaol and Marshalea of said County, to wit—the body of Martin Quinn, left under a rule of Bail the last Assizes; the body of Maurice Muldowney, ordered the last Assizes to be transmitted to Maryborough; the bodies of William Gilfoyle, Michael Kavanagh [with various other prisoners], all in the Gaol of said County and since last Assizes committed for robbery and felony. And also all and every the goods and utensils following, that is to say the Gaol and Court House; three green plush cushions belonging to the Bench; three large arm'd chairs with three small Kitterminster cushions, and two small fourms belonging to the Bench; two large tables belonging to the Court House; one large table, two fourms, a grate, funder, poker and tongs belonging to the Grand Jury room; fourteen pair of iron bolts, one transmit chain, one large barr-yoke with five neck-shackless, eleven iron plate locks, one pair of hand-cuffs, and nine stock-locks, all belonging to the Gaol and Marshalea of said County. In witnesses whereof the parties to these presents have hereunto put their Hands and Seals the day and Year first above written.

"C. B. Ponsonby, Esq., Sheriff. (seal)  
Signed, sealed, and delivered in the presence of us,  
"William Watters,  
"Sam Ivory."

Mr. Ponsonby's signature and seal were to the document; but not the signature of Sir W. Fownes.

The next meeting of the Association will be on the first Wednesday in April.

### THE BIRMINGHAM SANITARY CONFERENCE.

THE conference promoted and inaugurated by Mr. Chamberlain, the Mayor of Birmingham, was a most commendable proceeding, and has been fairly successful in its results. The representatives of several populous towns with some free lances attended, and the papers read were, on the whole, valuable, as well as the discussions that took place upon them. But, while admitting the value and usefulness of some of the papers read, there were statements made and opinions expressed that might be traversed with no injury to the cause, but an additional gain to the public health.

The opening address of Mr. Chamberlain, though nowise novel, was to the point. Dr. Hill, medical officer of health, treated of the condition of Birmingham; and Mr. D. Davies, medical officer of health of Bristol, read a very good paper on the measures necessary for the preservation of health. The condition of Leeds was described by Dr. George Goldie, and that of Liverpool by Dr. Trench, whose illustrations of the defects of the Artizans' and Labourers' Dwellings Act, 1868, ought to lead to its speedy reform. Dr. Leigh, of Manchester, spoke "On the Removal of Accumulated Matters liable to Putrefaction, and of some of the systems adopted in the North of England." Dr. Balhazor Foster treated of the comparative mortality of Birmingham, and illustrated his subject with a very useful table of mortality for comparison.

In the discussion that followed in the first section on the Sanitary Condition of Towns, the Mayor of Carlisle spoke on Lodging-houses; the Mayor of Portsmouth on a Town of Bad Mortality; the Mayor of Dudley on Mortality in the Black Country (Staffordshire); Dr. Humphrey Sandwith on the

Dangers of the Water-closet System; Alderman Tatham on Temperance as a Sanitary Agent; Mr. Challinor on Sanitary Progress in Leek; Dr. Hinde, Dr. Fergus, and Dr. Yeld on the means of Sanitation.

We may, on another opportunity, make use of some of the papers above alluded to, as well as other subsequent papers. Our contemporary, the *Sanitary Record*, gives special reports, and to its pages we would refer readers interested in the subject. As a matter of strict justice to other labourers and pioneers in the cause of sanitary science and public health, we must add that much of what has been uttered at the Birmingham conference is but a reiterated amplification of information and views put forward from time to time in the columns of the *Builder*, whose labours cannot be ignored or forgotten.

### CIVIC LYRICS.—No. LXXXVIII.

#### CONN OF THE HUNDRED CONTRACTS.

In Nilbud once a Contractor dwelt—  
He was well known to us all;  
He never studied the public health,  
Though oft at the Borough Hall.  
His estimates all were nicely drawn—  
No blot blurred over a line;  
He made a fortune, and well might yawn,  
For he never paid a fine.

Horses and carts he had, to be sure,  
And a "Bose" tarnation cute;  
Like the doctors, he could kill or cure,  
Though saving of man and brute.  
The less he did, the greater his gain;  
Whenever the sun did shine  
He sent off his carts to Dirty-lane,  
And managed to 'scape the fine.

When fogs were rife, his profits were large;  
'Twas then the Contractor smiled;  
Some of his men he would then discharge  
Till the weather grew more mild.  
"Paddy," he often said to his Bose,  
"As fog's coming down the line,  
Divil a street to-day you need cross—  
A fig for their threatened fine!"

Paddy, who studied his master's will,  
Passed the word to Mike and Tim;  
They passed it along to Broadstone Bill;  
He sent it to Blackplitt Jim.  
The carters four oft cursed at the fog,  
While their master sipped his wine;  
Half wages to them meant but half prog,  
Still Conn never paid the fine.

Thus Nilbud for years was kept quite clean  
By the man who made his wealth  
By never doing anything mean,  
Save blinding the Board of Health!  
He's dead, they say; yet the evil grows;  
But if an advice of mine  
Be followed by well-directed blows,  
We'll have work done on the fine!

CIVIC.

### NEW HIBERNIAN BANK, LETTERKENNY, CO. DONEGAL.

THE illustration with our present number is a photo-lithographic reproduction from the architect's own drawing of the new building in course of erection in Letterkenny for the Hibernian Joint Stock Banking Company, to whose head offices, College-green, in this city, very extensive additions are at present being made.

The company has secured a very excellent site in Letterkenny, facing the public square of the town, and sufficiently spacious to admit of the erection of suitable offices at the rere, and to allow portion of the ground to be set aside for garden purposes, &c.

One-half of the ground floor of the building is occupied by the cash office, manager's private office, strong room, lavatories, &c.; and the other half (to the left side) contains the parlour, kitchen, and kitchen offices, &c. From the manager's room there is a private door to the dwelling-house portion of the building, so arranged that no one can enter

or leave without coming under the observation of the manager.

On the first floor there are a large drawing-room, four bed-rooms, dressing-room, bath-room, &c., and servant's bed-room.

The rooms will be thoroughly ventilated, and the ceilings lofty, being, on the ground floor 14 ft. 6 in. and on the first floor 12 ft. 6 in.

The building is faced with the local stone (which is of a light blue colour) in squared uncoursed ashlar work; and the dressings to doors and windows, cornice, strings, &c., are of a light red stone from Ardrossan, with an admixture of Dungannon stone of a pale yellow colour. The columns to doors and ground-floor windows are of polished Bessbrook granite. The varied colours of the several materials, used with judgment and taste, are certain to produce an effect at once agreeable and artistic, and to make this building an undoubted ornament to the improving town of Letterkenny. The front windows will be glazed with polished plate glass in heavy moulded sashes.

The internal fittings of the cash office will be chiefly of pitch pine (as will also be the general joinery), mahogany and other woods being occasionally introduced.

The architect of the building (whose design was selected in a limited competition) is Mr. T. Hevey, F.R.I.A.I., of Belfast, under whose directions the works are being carried out. Messrs. Collen, Brothers, of Portadown and Dublin, are the contractors, and we understand they are fulfilling their contract in a way to give satisfaction to the architect. The building will be completed in two or three months; and the cost, exclusive of carving, decoration, office houses, enclosing walls, &c., will be about £2,000.

We are indebted to the courtesy of Thomas Breen, Esq., Secretary to the Banking Company, for the opportunity afforded us of giving this illustration, which has been faithfully reproduced by Messrs. Pim, Brothers, of this city.

### EARLY IRISH MEDICAL LITERATURE.

A KNOWLEDGE of Greek and Roman practice in the healing art appears to have been known at a very early period in the history of this country. Though it may not be known to our English professional brethren or the general public, numerous MS. tracts are still in existence which prove that among the class of men who followed the healing art in Ireland, in early times, were men who could favourably compare with those of any other nation. In some particulars our early practitioners appear to be in advance of the times. If ever the history of the rise and progress of British medical literature is written, it will be incomplete unless it takes cognisance of the works written in the Irish language. Not only are our early native medical tracts ignored, but those belonging to the seventeenth and eighteenth centuries are passed over by many English medical writers, although, both in the last and preceding centuries, we have had physicians and surgeons who performed extraordinary cures and operations for the first time, and laid the basis of a future practice extensively followed.

In 1794 Dr. Samuel Crumpe, M.D., of Limerick, a well-known popular medical practitioner, a member of the Royal Irish Academy, and an author of some note in his day, drew attention in the *Anthologia Hibernica* to "A manuscript copy of the Aphorisms of Hippocrates, and an Irish Commentary thereon." Dr. Crumpe said that his learned friend Dr. Sylvester O'Halloran,





Photo-Lithograph by Pim Brothers & Co. Dublin.



author of a History of Ireland and other works, mentioned to him that he was in possession of an Irish manuscript of the "Aphorisms" alluded to. Dr. Crumpe was entirely ignorant of the written Irish language, but by a study of the Irish characters he was enabled to read the Latin passages it contained. Dr. Crumpe describes this MS. work as executed on thick vellum, and the manuscript containing two different performances, both imperfect, and each evidently written by a different hand. He describes one as composed of extracts from the *Coaca Prænotiones* and *Prognostics* of Hippocrates, to each of which was annexed a long Irish commentary which he said he could find no person able to translate. The other consisted of some of the Aphorisms of the same author with a similar concomitant commentary. The extracts and aphorisms were in Latin, written in large Irish characters, and the commentary in much smaller letters.

The aphorisms, as far as they went, said Dr. Crumpe, succeed each other in regular order, but are neither numbered nor divided into books and sections. Unless where short, two or three first lines of each aphorism were transcribed with an "&c." annexed; and even where the entire was given, it generally concluded with an "&c." The first letters of each aphorism were large, and embellished in the "old Monkish style" in colours. When Dr. Crumpe examined this MS., very few of the large coloured letters remained, the colours having faded; "but in a corner of the now vacant space the letter which formerly filled it is found in a very small character in ink." The commentaries are described in general very long, and the one published by Dr. Crumpe in the *Anthologia* in Irish type is described to be an uncommonly short one. Besides giving a description, Dr. Crumpe appended "Observations." In his opinion the translation of the Greek was tame, and in some places ungrammatical, and in general as closely literal as the different idioms of the two languages would allow. He quotes specimens in proof of his statements, and then goes on to say that the first question that struck him on reading the manuscript was, whether the translation was an original one from the Greek, or merely a copy. A strict comparison, he thought, with the different translation of Hippocrates might determine this point; but their multiplicity rendered the task impossible. The translation of the aphorism which accompanied the specimen Irish commentary given in the *Anthologia* is as follows:—"Mulieri in utero habenti ab aliqua acutarum ægritudinum accipi mortale—&cetera—Sect. v., Aph. 30." With the Irish commentary Dr. Crumpe confessed that he was entirely unacquainted, and left it to others to determine the age and probable author of the MS. work.

Shortly afterwards Mr. Theophilus O'Flanagan, of Trinity College—"a novice in medicine" at that time, but possessing an acquaintance with the Irish language—undertook to set Dr. Crumpe and the public right on the subject. In his communication to the *Anthologia* he begins first by giving a translation of the Irish Commentary, but, from "motives of delicacy," he gives it in Latin. It may be worth reproducing this translation now, not from its medical value, but from the historical interest attaching to it:—"Etenim quod hic indicatur, hoc est. Si Mulier, dum gravida, febre corripiatur acutâ, mortale erit. Hoc etiam de aliis in universum acutis morbis intelligitur, uti sunt morbi Tetanus et Apoplexia: Hi enim morbi existunt interdum sine febre, aliquando etiam febre comitante. Cum autem febris comitatur, melius est mitem adhibere diætâ, uti febris requirit; si autem hoc factum sit fœtus occidetur, et etiam si diætâ tunc temporis datur, febris causa quoque augebitur, et fœtus et fœtus occiditur. Et indicatur itidem quod, si fieri possit, bonum fuerit eorum alterutrum legitimis sanari diætâ."

This is a very literal translation of the Irish into the Latin; and such is the genius of the Irish, in the opinion of Mr. O'Flanagan, that it admits of an easier translation of its

full force into Latin than any other tongue. On consulting some editions of the Aphorisms, Mr. O'Flanagan said he met no comment bearing an equal similarity to that in question with one of Heurnius, published in 1611, in which (when speaking of the difficulty of the cure in the case laid down) occurs the following expressions:—"Nam fœtus aut fœtus incommodo remedia adhibentur," and "Symptomatum vehementia et fœtus interitu"; and again, after other observations which are not in the Irish Comment, "Igitur quantum hic naturæ studebis, tantum morbum augebis. Non itaque licebit hic uti tenui diætâ qualem maxime morbus requirit," &c.

The above were reckoned to be points of similitude in the remarks arising from the same mode of practice. There appear to have been many copies of comments on the works of Hippocrates, Galen, and others, and we believe that among the MSS. of Trinity College they will be still found with other long-unnoticed medical tracts.

Writing in 1794, Mr. O'Flanagan said that there was formerly in the hands of Dr. M'Mahon, of Tureen, in the County Clare (father of the once celebrated Thomas O'Brien M'Mahon), a very curious medical tract entitled "Lilium Medicinæ" (an "Irish book with a Latin title," as someone has expressed it), transcribed at Montpellier in the beginning of the eighteenth century. This book was in the possession of the doctor's widow at his death, and some time afterwards it passed into the hands of a bookseller in Stephen-street, from whom Mr. O'Flanagan believes it to have been purchased by Mr. James Bradish, an attorney in Aungier-street. This Mr. Bradish, we believe, continued to live several years in the present century, and was resident for some years in Ely-place. He seems to have been a gentleman of some taste, and spent a considerable deal of money in collecting and preserving every curious tract in Irish literature that came in his way. The book in the possession of Mr. Bradish is described as a large thick folio finely written on paper, and it was certainly curious, as it purported to be an epitome of Irish medical knowledge. The first association of the faculty at Montpellier is claimed for a society of Irish physicians.

In remarking upon the first or head letters of each aphorism marked in small characters in ink in the margin as mentioned by Dr. Crumpe, Mr. O'Flanagan is of opinion they were never finished but left originally by the scribe to be put in by the embellisher or illuminator, and afterwards for some cause or other neglected. In respect to the orthographical or grammatical errors, he thinks they may be attributed entirely to the ignorance of the transcribers. The tameness of the translation and the awkward Latinization of the Greek words arose, he believes, from a sort of superstitious or technical, and a very unseemly if not ignorant, deference and adherence to the majesty of the original. Mr. O'Flanagan had no doubt as to its genuine and direct originality, or that it was by a practitioner; but as to whether an empiric monk or mere regular adept, he thinks it was the latter, as this country had physicians in abundance, and they formed a separate and distinct order of men in the State, as they do at the present day. The date of the work would answer any period from the seventh or eighth century down to the suppression of our language by English acts, and the consequent neglect of our native literature.

A perusal of "Cormac's Glossary," a translation of which has been given by the late Dr. O'Donovan, ought to convince any sceptic that the state of learning in Ireland long previous to the tenth century was very advanced indeed, and that the medical as well as legal knowledge of our countrymen was not only commendable, but remarkable.

We have mentioned the name of Sylvester O'Halloran in connection with our subject, and it may be remarked of him that he was the author of several medical tracts in the last century, and he was the first to propound that symptoms of compression alone warrant trephining—an axiom generally

attributed to Sir A. Cooper. The MS. translation of Hippocrates into Irish, alluded to in this article, was given to Mr. O'Halloran by the celebrated Charles O'Connor, of Balinagara, and it must indeed have been made long previous to the first Venetian edition. Mr. O'Halloran states that 1,900 years ago Feighnin Feathig trepanned Conor king of Ulster, and he quotes the good surgical advice that monarch received but did not follow.

In conclusion for the present, we would refer our readers to the interesting address of Surgeon E. D. Mapother, at the opening meeting of the session of the Royal College of Surgeons, October, 1873. In that address will be found some condensed and interesting particulars of the literature of the Irish medical school, and of some of the wonderful operations performed by native practitioners in the seventeenth and eighteenth centuries, and some of them for the first time. Whether speaking their native language or that of their latter-day rulers, the practitioners of the healing art have ever been rather in advance than behind their age.

### BUILDING CASUALTIES.

THE late stormy weather has caused several accidents to buildings in course of construction, and from various quarters, particularly in the south, accounts reach us from our correspondents of accidents more or less serious, fortunately without loss of life.

At Carrick-on-Shannon a new R.C. church nearly completed was blown down, and with the exception of the tower is a mass of ruins.

At Ballybunion, Co. Kerry, a sea-side villa being erected for Mrs. Young suffered some damage. A correspondent states that the design for this building seems more suited for the suburbs of Dublin than for one of the wildest and most exposed sites on the whole western coast.

The fall of portion of Messrs. Bannatynes' corn store at Limerick, has not been as serious as would be inferred from the reports in the daily papers—one angle of the block of buildings fell completely away from the rest. The cause of the accident is stated to be the expansion of the large quantity of grain stored in the "bins," which, on referring to the description of the building, given in former numbers of this journal, we find stated to have been built on the American principle. The building looks considerably shattered at the river side, presenting a curious appearance to persons coming up by steamer, who were wont to admire this seemingly well-designed and solidly-constructed building. Fortunately the accident occurred while the workmen were at breakfast. The cost of rebuilding will be considerable.

In Upper Patrick-street, Kilkenny, the roof and walls of a house, in which lived five or six blind mendicants, fell. Fortunately there was such a threatening of what was about to come, that the poor inmates escaped into the street a moment or two before the crash, and were uninjured. There was a great scene outside the house, caused by the blind men calling and whistling for their respective dogs, each being seriously alarmed lest his faithful guide might have been buried in the debris. The animals, however, all got out unharmed.

The new Methodist church, which is in course of erection at Carlisle Circus, Belfast, was considerably injured, a large portion of the masonry having been blown off the top of the building. One of the lighthouses in Belfast Lough has been blown down. A portion of the house of Mr. Jaffe, at Sydenham, was blown down, and the inmates had a narrow escape; and the side walls of a church at the Knock was so much bent that it is believed it will have to be taken down. A portion of the Orange Hall, at Holywood, was also blown down.

### THE CONSTRUCTION OF GAS WORKS.\*

THE subject of the paper was the consideration of what types of gas-making appliances were cheapest in construction as well as most efficient in action. The site should be selected chiefly for facilities in receiving and delivering materials by rail or water. Every section, of which the most important was the retort house with its contents, should be so constructed as to admit of extension without involving destruction. Opinions were divided, whether the house was best with the retorts upon the ground level, or on a "stage." The author had come to the conclusion, that when there was a ready sale for coke from the ground-floor of the stage-houses as fast as it was made, a saving of labour, as compared with a ground-floor house, was effected; but not when the coke had to be stacked outside the house. A comparison of the manufacturing wages for the year 1873 of those Metropolitan Gas Companies employing stage-retort houses and others using ground-floor houses, showed a saving by the former of 48d. per 1,000 cubic feet of gas sold. On the other hand, the cost of a stage-retort house, complete with retorts and fittings, and having suitable coal stores, ranged from double to three times that of the simpler form of house for the same capability of production. The cost of the stage-house was not less than from £16,000 to £18,000 per 1,000,000 cubic feet of gas produced per diem, or £8,000 more than the ground-floor house. This would require, at the usual rate of interest, £800 per year, to which must be added the wear and tear at £2 per cent.—£160, making an annual extra charge upon working of £960. Allowing a deduction for extra labour on coke, the net saving was probably about 4d. per 1,000 cubic feet of gas. Supposing the maximum annual make to be 203,670,000 cubic feet, the saving on this quantity would amount to £282, which fell short of the extra annual charge by £678. Of the various retorts, the round form was undoubtedly the strongest and most enduring, and the oval the weakest; but the latter and the D shape were capable of working heavier proportional charges. The greater the number of retorts within one oven, and worked by one furnace, the greater the economy in fuel; as the surface of the enclosing walls, and *pro tanto* the loss of heat by radiation, were thereby reduced in proportion to the capacity for carbonisation.

The effect of the high temperature at which coal was best carbonised was that, through the dip pipes, the liquid contents of the hydraulic main were subjected to a continuous blast of gas from the white-hot sides of the retort. The stagnant tar, therefore, was boiled until its fluidity was gone. This produced pressure on the retort, causing loss through its pores, active deposition of carbon on its sides, and a constant choking of the ascension pipe, near the mouthpiece especially, but more or less throughout its length, occasionally even implicating the H pipe. There were many propositions to remedy these stoppages, and to do away with the hydraulic seal altogether. Of these, none would bear comparison for safety and effectiveness with the contrivance they aimed at displacing. The fault lay not in the hydraulic seal, but in the condition of its contents. The problem to be solved was how to keep the tar in the hydraulic main sufficiently fluid. The author found that an extra length of 8 feet of ascension and dip pipe, interposed between the retort and the hydraulic main, reduced the average temperature within the latter 36°. The deposit of pitch then ceased, and no further stoppages were experienced. There was little prospect of the intermittent process of carbonising by manual labour being superseded by a continuous system actuated by steam power. None of the suggestions with this aim had justified their adoption on a working scale. Even the modified advantage of substituting steam power for manual labour seemed difficult of realisation. Of this last, a thorough trial at Beckton had ended in its being for the present abandoned. The form of the condenser was immaterial so long as it was extensive enough, and did not separate the tar and liquor until the desired minimum temperature was reached. This should be near that of the atmosphere, even in the depth of winter, to avoid condensation of naphthalene and loss of illuminating power in distribution. Of exhausters, the best, known as "Beales," had a rotary action. The washer and scrubber were next considered. These removed the ammonia, and such carbonic acid and sulphuretted hydrogen as would combine with the water and ammoniacal liquor used. Washers were generally shallow, oblong boxes, with cellular passages sealed by liquor or water, through which the

gas was forced or drawn in fine streams; they gave a more intimate contact between the gas and the liquor than the scrubber, but were open to the objection that they caused back pressure. The scrubber, on the other hand, did not work well with small quantities of water, owing to the difficulty of ensuring equal distribution throughout its contents as commonly arranged. The scrubber was usually a cylinder, sometimes of extreme height, filled with porous material, by means of which the gas was washed by ammoniacal liquor or by water; by these, and with reasonable care and entire exclusion of tar, fair results were obtained. The materials used in scrubbers were in themselves inert, and were subject to have their interstices filled by a deposit of tarry oil. The liquor was thus diverted, and established for itself distinct channels, the gas meanwhile taking separate routes through a mass of material, avoiding the contact desired. This defect was necessarily magnified in lofty scrubbers, where the liquor had to descend from 50 to 70 feet. For the removal of ammonia, and at the same time to procure liquor of great strength, the author preferred scrubbers on a principle somewhat like that of the Coffey still. They were boxes of iron 20 feet high, 10 feet long, and 2 feet wide internally, with longitudinal shelves of unwrought fir, 6 inches apart, extending alternately from one end of the box to within 6 inches of the other, so as to cause the water to traverse the whole length of one shelf before it descended to the next, meeting the gas flowing in a flat, wide current in the opposite direction. The washer or scrubber was an apparatus of great value, inasmuch as all purifying agents acted more energetically in a liquid form, and were cheaply and easily brought into contact with the gas without demanding manual labour.

The purifiers should be capable of holding such a bulk of material that its interstices might contain a considerable volume of gas, and reduce the velocity with which the latter were passed in contact with it. The capacity should vary with the density of the purifying material. With either lime or oxide of iron, there was a sacrifice of economy whenever the capacity of the purifiers, at any one time acting on the gas, was less than 4 cubic feet per 1,000 feet of gas purified per diem, and that so disposed that the aggregate depth of the material in lineal feet was not more than 1-20th of the area in square feet. The author preferred to have on the outlet of each purifier to the clean gas main a valve sealed with fresh water. The great question of the day in purification was to remove the bisulphide of carbon. It had been ascertained that when sufficiently long in contact with an alkaline and sulphide, this impurity was reacted upon. If, therefore, caustic alkali was submitted to gas foul with sulphuretted hydrogen, but free from carbonic acid, a sulphide was obtained, which reacted on the bisulphide of carbon. In this condition, however, lay the difficulty. Although alkaline bases had a higher affinity for carbonic acid than for sulphuretted hydrogen, and were therefore capable of removing it preparatory to the process before indicated, their affinity for the latter body was considerable, and it was not easy to prevent sulphuretted hydrogen being arrested, so as to vitiate the formation of sufficient alkaline sulphide in the succeeding purifier for the extraction of the bisulphide. From this cause results of an apparently eccentric and conflicting character were occasionally obtained. Absolute purity from bisulphide of carbon had not yet been attained, but so far this body appeared to be capable of restraint within unobjectionable limits.

Gas-holders with their tanks were a portion of the plant which, next to retort houses, figured most prominently in a company's capital account, and therefore afforded the engineer scope for the exercise of economy in construction. The holders should be telescopic, developing a double storage capacity for the single expense in tank. The proportion of the height of the holder to its diameter should be regulated by the maximum amount of pressure required, subject to the value of the ground occupied. At the same time a height in each lift of less than one-fifth of the diameter was undesirable. Gas-holders might be light in weight without sacrifice to their efficiency. The iron sheeting need not be thicker than No. 12 Birmingham wire gauge, weighing 4.38 lbs. per square foot. The pressure of the gas within assisted in maintaining their shape; and the sides needed little framing beyond good top and bottom rings, where the guide rollers were attached, and a sufficient number of uprights to sustain the weight of the top sheets. No truss framing was required, as the sheeting might rest on a cheap scaffolding of wood when the holder was landed, and would be sufficiently sustained by the gas within when afloat. The author had frequently been inside gas-holders inflated with air, and had noticed the trussing hanging from the distended

sheeting of the top, being practically a burden instead of a support. However perfectly a roof framing might be adjusted, when the holder was lifted by internal pressure, its members remained rigid while the sheeting stretched, and never again fitted the framing. At ordinary rates of iron, gas-holders of the kind described could be constructed, for sizes below a capacity of 300,000 cubic feet, at about £13 per 1,000 cubic feet; above that size the cost diminished with the increase of capacity, until at 2,000,000 cubic feet £8 to £10 per 1,000 cubic feet represented the cost. A holder for 2,350,000 cubic feet, which had a slight truss in the top, had been executed in 1866 for the Commercial Gas Company at so low a rate as £5 18s. per 1,000 cubic feet. The external guide framing should be strong enough to sustain the inflated holder, even under the influence of a hurricane. At the same time, the constituent metal could be disposed in forms developing, far more than was commonly seen, the strength due to the weight of iron composing its members. The author had been impressed by the elegance, and general fitness of the form to the purpose, exhibited by the guide framings of the original gas-holders, at the Bow Common Station of the Chartered Gas Company, designed by Mr. Croll, Assoc. Inst. C.E. Gas-holder tanks had usually, where soil permitted, been built of either brickwork or masonry, well puddled round the walls and over the bottom. Portland-cement concrete, in some cases without puddle, had been adopted latterly, notably by Mr. Livesey, M. Inst. C.E. Brick tanks, puddled, ordinarily cost £8 10s. per 1,000 cubic feet of capacity of the telescoped holder fitted in them, though the cost of the tank for the Commercial Company's holder was as low as £5 5s. per 1,000 cubic feet. A concrete tank constructed by Mr. Livesey had been completed at a saving of £2 11s. per 1,000 cubic feet, as compared with a brick tank of the same capacity.

The governor or regulator, as usually constructed, had a conical valve suspended in the upward stream of gas, actuated by a balanced gas-holder, and was open to the objection that, having a flat base to the cone, the latter was disturbed and acted upon by the current of gas, much as a loosely fitting piston would be, and therefore required constant readjusting. To obviate this irregularity, a large throttle valve had been adapted for the purpose, which worked admirably. The ordinary pressure upon the system of mains ranged from between 1.0 and 1.5 inch head of water between sunset and midnight to 0.6 inch or 0.8 inch for the rest of the twenty-four hours. To secure economical distribution, the regulation of the pressure in the mains at all parts of the system should be under complete control; that pressure should be, as far as possible, uniform with the initial pressure, or, under a constant rate of variation from it. These conditions were best fulfilled by distributing the gas from a mean level between the extremes, having high and low pressure mains for supplying the lower and higher portions of the district, right and left, avoiding all duplication in their course, and the consequent multiplication of joints and surfaces of metal.

In settling the proportions of length and diameter in the arterial and subsidiary mains, the experience of the qualified engineer would be the best guide. Mr. Hawksley, Past-President Inst. C.E., had rendered invaluable service by investigating the laws which governed the transmission of aeriform fluids through cylindrical pipes, and by determining, from experiment on a practical scale, the coefficient of friction for coal gas. The author was satisfied that mains and services could be laid practically free from leakage. If the condition of mains and services as laid could be preserved, no doubt leakage would practically disappear. Unfortunately, however, mains, once laid, were subject to disturbing influences, such as decay of material, subsidence of the soil wherein the pipes reposed, and, in large towns, the vibration due to heavy street traffic, as well as to contiguous railways. There was no satisfactory reason, however, for the high average percentage throughout the country. In the district of the Ratcliff Gas Company, which surrounded the Docks, and was consequently subject to vibration from the heaviest traffic, the total percentage of unaccounted-for gas, including other losses besides leakage, had, for two years, been within 6 per cent.; and the returns from various parts of the country indicated improvement in this direction.

As an argument for the importance of cheap construction it was pointed out, that the maximum demand for gas extended only for about three weeks in the year, falling at midsummer by as much as two-thirds. The anomalous and varying rates at which gas was sold, not only throughout the country, but even within the limits of London, was explained by the varying proportions between

\* Read at Institution of Civil Engineers, London. By Mr. Harry E. Jones, Assoc. Inst. C. E.



the quantity of gas manufactured in each case and the amount of capital employed. The difference in the charge to the consumer was absorbed in meeting the higher charge for dividend which the company with the larger proportion of capital required. This difference no concentration or amalgamation could overcome; and the lesson taught to the engineer should be the importance of endeavouring, as far as in him lay, to develop the highest efficiency from the works with the lowest expenditure of capital.

## COUNTY GAOLS IN IRELAND.\*

(Concluded from page 26.)

OWING to the adoption of a new system of prison discipline, it has become necessary to alter or rebuild our gaols to a great extent. Under the system which formerly prevailed, gaols were planned so as to allow a separation of classes of prisoners in groups of apartments or wards; each class had its suite of sleeping cells, day room, work shed, and exercise yard. But associating the prisoners in a day room, at work or at exercise, was found pernicious, partly in relation to evil effects on the prisoners themselves, and partly as to difficulty in maintaining efficient supervision. The main object of the new system is to separate the prisoners one from another as much as possible—in fact to make each cell a complete prison within a prison. In order to carry out the new discipline, the late General Jebb (then Colonel of Royal Engineers) devised a plan of gaols which has since been generally followed as a model, with some variation of detail.† The principal characteristics of this model are:—1. A central hall, and radiating corridors open to the roof. 2. Several floors of cells opening off the corridors; the upper floors being reached by galleries. 3. Heating, ventilation, gas and water supply to each cell. 4. A special arrangement of pew partitions in the chapel, whereby prisoners are not allowed to see one another, though they may see the officiating clergyman. 5. Special forms of door and window fittings and fastenings, alarms, cell furniture, &c. The central hall and corridors give great airiness and promote free ventilation in the interior of the prison, and at the same time facilitate an efficient supervision. A single watchman can keep guard in the hall, so that no prisoner can move into the corridors without being seen, nor can the warders who have to attend on the prisoners neglect duty. If the occupant of any cell wants anything he may pull an alarm, which will disengage an indicator showing the number of his cell; the attending warder is then bound to ascertain what is wanted—the indicator will remain disengaged until he fastens it again. A warder may see into a cell without being seen by the prisoner, if he looks through a hole in the door, made for that purpose, one side of the hole being covered with wire gauze; or if he opens a small hatch in the door, the prisoner may see and speak to him. The prisoners have to clean up their cells, make beds, &c., and to work in the cells at oakum-picking, shoemaking, tailoring, matmaking, or other work practicable in such small spaces; but they are brought out daily to take exercise, and on appointed days to attend instruction or religious services in school or chapel. Some of the males are told off to do work outside the cells, such as preparing and cooking food, scrubbing, whitewashing, &c., while the females are required to do laundry work. The exercise yards are generally circular enclosures, about 30 yards diameter, surrounded by a tall iron paling. In these the male prisoners are commonly put to the shot exercise; this is simply marching in a circle, and stopping at short intervals to lay on the ground and raise again a cast-iron ball: the frequent stooping and rising, coupled with rapid walking, is supposed to be good exercise for male prisoners, but free men would probably find it extremely difficult. Female prisoners merely walk round and round.

The supervision of gaols is managed by intern and extern officers, appointed and controlled by a board of superintendence, nominated in Ireland by the grand jury of each county, but subject to the supreme authority of the Lord Lieutenant and Privy Council. There are rules to protect prisoners against unfair treatment by prison officials, and others to sanction summary punishment of prisoners for breaches of discipline. A modern gaol is generally divided into several blocks of buildings, some grouped together and others detached. They may be numbered as follows:—1. Administration; 2. Untried prisoners; 3. Convicted males; 4. Convicted females; 5. Infirmary; 6. Porter's lodge.

1. *Administration*.—In this block of buildings may be found board-room, clerk's office, and waiting-room for the board of superintendence, and for the officials, governor's house, and separate suites of rooms for matron and warders, male and female, a chapel and school-rooms. It is found convenient to have the administration placed centrally, but with sufficient distinction and privacy between the dwellings provided for the several officers.

2. *Untried Prisoners*.—Prisoners of this class are not subject to such rigorous discipline as those of the convicted class, though their cells generally do not differ in character. Connected with this part of the prison it is usual to provide apartments called reception-rooms, into which incoming prisoners are brought at first, before they are taken to the cells. There is also a room in which visitors to the prisoners can see and converse with them. The buildings of this block are sometimes extended so as to include quarters for the warders and school-rooms. A good arrangement would probably be found in placing the administration apartments and governor's house centrally, with wings at each hand for untried prisoners and warders' quarters respectively.

3. 4. *Convicted Prisoners*.—Separate blocks for males and females are provided, radiating from a large central hall. The basements are utilised for kitchens, scullery, laundry, drying-closet; store-rooms for food, fuel, clothing, utensils, furniture, &c.; workshops, heating apparatus, punishment cells, baths, &c. The planning of these apartments is dependent on that of the cells above, but it does not present any material difficulty. Taking the males' block—at one end may be found baths, punishment cells, &c.; at the other, kitchen, scullery, and heating apparatus, and in the middle workshops and store-rooms. In the same way in the basement of the females' block may be found at one end baths and punishment cells, at the other, laundry and drying-closet, and in the middle, clothing stores and workrooms. The fitting-up of baths, kitchen, drying-closet, &c., does not differ from ordinary types. The punishment cells are for prisoners who commit offences while in gaol; they differ from ordinary cells in being completely dark, and in being provided with double doors and extra thick walls to exclude sounds. However, they must be thoroughly warmed and ventilated; the authorities enforce stringent attention to these points. The ground-floor plan simply consists of a large central hall open to roof, and broad radiating corridors also open; the hall may be about 40 ft. diameter, and the corridors about 18 ft. wide. At each side of the corridors there are usually three tiers or floors of cells, one over the other; access to the upper floors is gained by stairs leading to narrow galleries which surround the corridors at each floor, but which do not obstruct the view from central hall. The corridors are lighted by large windows at the end, and by skylights. The ranges of cells are alike on each floor, and in general all the cells are alike in size, shape, and general fitting up. The minimum space allowable for any cell is 432 cubic feet, but usually more is given; in some good examples the dimensions are 11 ft. long, 7 ft. wide, and 9 ft. high—equivalent to 693 cubic feet. In construction it is usual to build outer walls of stone, with brick linings, and internal walls of brick only, the former from 2 ft. 3 in. thick, and the latter from 14 in. thick. Air-flues 9 in. diameter are sometimes placed in the walls which divide corridors from cells, and in such cases the walls are increased in thickness. It is not advisable to place flues in the walls separating cells, inasmuch as the effect would be to facilitate the transmission of sounds from one cell to another—prisoners become extraordinarily expert in signalling through the walls. Cell floors are usually boarded, inasmuch as wooden flooring is considered better in a sanitary point of view than flagging or other flooring; internal wall surfaces are whitewashed, not plastered, and all cells are vaulted. Elaborate arrangements for warming and ventilating are usually provided, and generally designed to be partly under the prisoner's control. Fresh air is admitted through the cell window and an opening in the outer wall to any extent the prisoner prefers, but it is also admitted through flues in a way that he cannot control. Foul air is carried off in other flues to a great chimney over the central hall. An upward current is induced in the foul air flues by heating the chimney, either by means of a furnace specially contrived for that purpose, or by means of waste heat from kitchen, laundry, or other fires. The cells are warmed by heating the ascending current in the fresh air flues, or by means of hot-water pipes under the floors. It is usual to light the cells with gas, but it has been found dangerous to place the jets within the prisoner's reach. At present the most approved plan is to place the jet in or opposite an opening in the corridor wall, so that the gas may be lighted from the corridor, and so that

the prisoner cannot reach it. Another point insisted on by the inspector-general of prisons relates to the apparatus by which prisoners sound an alarm to call up the warders. Hitherto a draw handle like a common bell-pull has been used, but henceforth a button and spring must be provided; the reason is, simply, that the old projecting handle gave opportunity for attempted suicides. The other fittings and fastenings are well described in Colonel Jebb's book, and need not be referred to here, except that an additional bolt and lock is now sometimes provided for the cell doors. This is in consequence of the remarkable escape of a political prisoner a few years ago; it is supposed that after being provided with a key and the hatch of his door being left open, he put his hand through it and easily opened the old form of lock.

5. *Infirmary*.—In this building it is usual to provide a surgery, and various rooms for nurses, clothing, utensils, &c., large day-rooms and yards for convalescents, and large airy cells for the sick. The infirmary should be well detached from the other parts of the prison. Epidemics sometimes break out in gaols, so that it would be advisable to have a good deal of accommodation in the infirmary.

6. *Porter's Lodge*.—The porter's lodge consists generally of a living-room, a bedroom, and a waiting-room or office. The only entrance to the gaol is through double gates at the porter's lodge; a visitor coming in will find the first gate shut behind him before the other is opened, and that the porter will keep a record of the visitor's name, business in the prison, and of the duration of his visit. Formerly the gallows used to be conspicuous over the porter's lodge, but enlightened legislation in recent years has removed that ominous machine out of view, and happily it is now rarely used in Ireland.

## DROGHEDA AND ITS HARBOUR.

MR. James M'Cartin, Engineer to the Commissioners, has furnished his annual report as to the state of the River Boyne, and the impediments to navigation therein. He says:—

The various bends in the river impede its navigation, and foggy weather and dark nights make it difficult and dangerous. The operations for the past year were principally confined to their removal. During the months of January, February, and March the dredger and working plant were employed straightening and deepening the channel between the Viaduct and Stameen Quarry, by cutting off a portion of the bend on the south side of the river, opposite Greenhills, during which time there were removed 610 ft. long, 47 ft. broad, with a depth along the shore of 6 ft. at low water. The stone tower which stands on this bend I intend to take down, and to rebuild it on the river embankment, and to cut away the bank upon which it stands, and to make it equal in depth to the channel.

The material lifted out of the river at this place was discharged adjacent to the work, and was made use of in forming an embankment along this part of the river; and if the work were continued here for a period of about two years the flow of the tide could then be cut off, and prevented from passing over the slob on the south side of it, which would be the means of drying up and reclaiming over sixty acres of land, and which, being in the immediate vicinity of the town, would be valuable as a park, fair green, or cattle market.

In April the dredger proceeded down the river, and was employed until the end of May enlarging the channel at the stage, by cutting off a portion of the south bank in the river at the Mussel Bed, and where an additional width of 33 ft. was given to this part of the river, and the depth in the part cut away made equal to the deepest part of the channel.

Early in June the dredger, with the men and ponies, commenced to remove a portion of the abrupt bend on the north side of the river, opposite to Maiden Tower, and, when the weather and sea permitted further out, until the 4th of August, when, by order of the Board, the men were allowed the usual privilege of going to work at the harvest.

The dredgings lifted out of the river at those places (13,000 tons) were discharged on the south side, and formed into an embankment seawards of Maiden Tower. This being the most exposed part of the river, various difficulties interfere with the dredging of it, and which circumstance accounts to a great extent for its very neglected state, as, although the dredger is now forty-five years in the river, she has not been worked here, except for one or two days twenty-six years ago.

In order to bring it into proper train, and to make

\* By Mr. John Brett, C.E. Read at meeting of Architectural Association of Ireland.

† Colonel Jebb's plan is well illustrated in one of the quarterly papers on subjects connected with the duties of Royal Engineers, published by Weale, London.

it easy and safe to navigate, the sailing channel from the Bar to the Waterfall at the west side of New Deep requires to be enlarged and straightened, by cutting away the bends on the south side, through the rough ground and Rockshod, through the Mussel Bed, Swash, and New Deep; and on the north side, from the stage through the Bluff Head. When those bends are cut away, and the space they now occupy in the river made of a uniform depth equal to that in the channel, the gain to the navigation will be enormous, and the heavy land floods of winter will then be allowed to discharge rapidly on the bar, producing a current powerful enough to remove any deposit or tendency to shoal, and to secure, both in the river and over the bar, an increasing navigable depth.

To carry out this very requisite improvement a great amount of material requires to be removed, and a vast amount of dredging performed. It may, therefore, be worthy the consideration of the board the propriety of getting additional dredging power, so as to enable the work to be performed within a reasonable time, and the commissioners would find it a much cheaper way of keeping the bar clear of shoals than by building two walls and afterwards turn out a complete failure.

In dredging there would be a certainty of success without any risk to speak of in expense, and if we had these walls out to-morrow, the removal of these bends would be as much a necessity then as now.

To describe the various systems of dredging adopted, or the various appliances made use of, would be superfluous; it may be sufficient to name two as being the best suited to the requirements of our river, viz.—Dredging with hopper barges to convey and discharge the dredgings into deep water, and dredging with pontoons, and pontoons. The former is the quickest mode of getting clear of the dredged material, but the requisite plant for doing so is expensive, as the barges must be seaworthy, and be able of themselves to go and come back from sea, or if not so arranged must be taken out and back in charge of a tug steamer. In dredging with pontoons you have the dredgings, and which for our river are requisite and valuable, they being well suited for forming embankments along the river on both sides, the effect of which will be the fixing of the channel, so as to form one permanent navigable track, and those embankments will be the means (when the work already specified is carried out) by which the tide can be excluded from the entire sloblands on both sides of the river, and thereby allow of over 1,000 acres of land being dried up and converted to useful purposes, without interfering with the beneficial effect of the tidal scour. The quantity of material taken out of the river for the past year amounted to 50,790 tons. Eight hundred tons were brought up the river, and made use of in repairing and keeping in repair the roadway along the quays; and 654 tons sold as ballast. The remainder was discharged in the immediate vicinity of where it was dredged, and formed into properly constructed embankments along the river.

In my last annual report I brought under the notice of the board the great advantage to be derived by having at least a portion of the harbour in connection with the railways. Rails are laid down to the quays at Dundalk, Newry, Belfast, and other places, and an easy connection can be effected here by putting in a quay on the south side, at Ship-street, with a line of rails, about half a mile in length, from it to join the Dublin and Drogheda Railway at Mrs. Behan's cottage. The gradient of inclination would be less than on portions of many railways in the country over which heavy traffic is conveyed, and very little difficulty experienced. With such materials as coal and timber the expenses of cartage between the harbour and the railway is a considerable addition to the cost at which they can be supplied, and must, therefore, be injurious to the port. That such a connection would increase the trade and add to the prosperity of the town I have no doubt, and would be a source of revenue to the railways.

#### DUBLIN MAIN DRAINAGE BILL.

At a meeting of the promoters of this bill, held on the 26th ult., for the purpose of considering the statement contained in the reply of his Grace the Lord Lieutenant to the citizens' memorial, on the 14th December, 1874, and the resolution founded thereon, which was adopted by the Corporation on the 22nd instant, both of which have been already published, it was resolved:—

"That we are not prepared to take any step which might prevent the ratepayers from obtaining immediately the financial benefits which the granting of the foregoing application of the Corporation by the Government would confer. If, therefore,

the Government be willing to grant the application of the Corporation, we shall deem it to be our duty, in the interests of the ratepayers of Dublin, to relinquish our bill; but, in doing so, we do not wish to be understood as expressing thereby any approval of the constitution of the body entrusted with the carrying out of the Act of 1871, nor as consenting to the engineering features of the scheme, either in its original or in its present mutilated form, nor of the revised estimates of its cost, nor of the retention of the rating provisions of 1871, under the present altered circumstances of the case; and we are further of opinion that the Government, in assisting the Corporation to carry out the scheme, by supplying the funds on the terms and conditions set forth in the above-mentioned resolution, will relieve the ratepayers, and those acting on their behalf, of much of the expense and responsibility under which they would otherwise rest."

We have yet to learn whether the amount of money required will be advanced upon satisfactory terms. The above resolution of the citizens' committee, while it tends to remove the obstacle from out of the path of the Corporation, in no way admits that the patched and repatched municipal scheme is suitable to the circumstances of this city, or that the engineering features of the scheme can be commended.

#### REPORT OF THE MAIN DRAINAGE COMMITTEE.

THE report of the Main Drainage Committee upon the subject of the memorial presented by the Citizens' Committee to the Lord Lieutenant is a marvellous piece of special pleading. It bristles with commas, but is very sparing of facts. Exactly as we foretold last year, the committee have availed themselves of a couple of disjointed sentences from the Viceroy's answer to the municipal deputation that lately waited upon him, to fortify their own weak and fallacious excuses. The Dublin public, who have paid any attention at all to the doings of the Corporation in respect to the Main Drainage scheme, are aware of the tortuous conduct of the Town Council on the head of the measure. We have so often spoken of the backslidings of our municipal body—their one step forward and three steps backwards—that it would be tiresome to our readers to pass again under review the sinuous course of the Main Drainage scheme. Mr. John M'Evoy has already, in his published letter to a daily contemporary, exposed some of the untruths ventilated in the report; but despite of his denial they will be persisted in. There are other matters in the report, not alluded to by Mr. M'Evoy, which might be easily traversed.

The works at Newcomen Bridge, for which the committee take credit as a successful instalment of the scheme, has been characterised by faults which they have ignored. Are the works at Essex Bridge "most satisfactorily completed" at the moderate cost of £6,700? Time will reveal this, when the continuation of that work commences. The committee also claims credit for "at once" reducing their Main Drainage staff, when they found that the work could not be proceeded with on account of the enormously high tenders sent in to them. Now, the facts are, that it was only after repeated remonstrance in the Press and on behalf of the citizens, as well as by several members in the Council, that the "Drainage" staff was reduced, and reduced most reluctantly, as the proceedings of the Corporation will show.

The motions, resolutions, amendments, riders, the rescinding of resolutions, and the re-affirming them on the head of the Main Drainage scheme, are legion, and many of these motions and counter-motions were merely time-killing expedients on a pretence that work was being done. The numerous reports and amended reports on the Main Drainage scheme, tell very little in favour of the engineers or the Main Drainage Committee. One and all either knew their business, or they did not know it. It is clear,

however, the citizens have not been furnished with proof that the requisite qualifications existed. Professional journals, of long standing and ability, in London, pointed out more than once the mistakes and bungling manner in which portions of the work were proposed to be done. We have also pointed out the same. Determined remonstrance on the part of the citizens to a ruinously costly job was met each time by a referring back again and again of the scheme for amended report.

The Main Drainage Committee have not disposed "of the allegations in the Memorial" of the citizens. The allegations said to be disposed of were facts too stubborn to be displaced by the proxy and plausible "Report of the Main Drainage Committee."

Having said so much, let it be understood that we are not opposed to a well-considered Main Drainage scheme that can be carried out without inflicting a heavy burden on the backs of the ratepayers. Dublin badly needs main drainage, for it is one of the most unsanitary cities, one of the most neglected, as also one of the most heavily-taxed in the British dominions. Let us, by all means, have a good main drainage system carried out at once, but let there be no gigantic jobbery connected with its prosecution. We fear, however, that there will, and for that reason alone—having had an experience of other Corporate works in Dublin—we are in favour of a distinct main drainage board to carry out the work apart from the Corporation, and empowered by Act of Parliament. We have no personal or party interests to serve by giving expression to the above opinions. They are made solely in the interest of the public and the public health.

#### LARGE AND SMALL FARMING.

IN Hungary, in France, in Great Britain and Ireland—in fact in all countries,—farming on a large scale is proved to produce a greater quantity of food than could be by the small farmers or peasant proprietors. However, the tendency of letting land in large farms to single individuals has caused the land to be devoted to grazing cattle, instead of by the employment of labour, to the production of crops and the house-feeding of stock, &c. Grass land remained nearly in the state in which it was originally. The cattle manure lies on the soil, and no attempts were made to preserve it, and a great deal of the good was lost in the air. Sometimes when there was a demand for land, portions in a lease were let, generally to small farmers with no, or with very little, capital. These tenants usually contrived to live a miserable existence; and, when the lease was terminable on the expiration of the term, the lessee often found the land occupied by persons without capital wherewith properly to till the ground. He, therefore (though increasing his own rental), set the land to these occupiers at a smaller rent, so that in a few years the most industrious were able to save and amass capital. No small capitalist can embark in that class of machinery necessary for deeply turning up the soil, and for the raising of stock, for the providing of shelter, houses, and the purchase of the necessary machinery and tools. The labour strikes will deter large capitalists from embarking perhaps their whole in a single adventure. There is, however, no reason why companies should not arise who might give employment and invest in the rearing and fattening of all descriptions of stock. These companies would use machinery, worked by steam and other powers, provide shelter and accommodation for the fattening and breeding, and better habitations for the employés. The tendency of machinery has been to create a large demand for labour, increase wages, enlarge the produce, while decreasing the cost thereof. In America pig rearing to a large extent has arisen, and in Scotland already there is an establishment where 800 dead pigs are annually sent to market. This created a demand for several kinds of labourers, butchers,

&c., and a regularity and order in the management. Large farms must create a demand for engineers, stewards, and all descriptions of the necessary attendants on cattle. There are large districts which are completely in a state of nature, and which, if taken by a large company could be rendered more productive. In these districts the fuel can be obtained for the creating steam; there is also a large quantity of water for working turbines and other mills. The drainage of the soil and breaking up a portion, at first taking from the ground a grain crop, which will produce feeding, &c., for the housing of cattle, and will increase the manure. In order that as much capital should be possessed for the purchase of machinery, stock, payment of labour, it is advisable that such companies should rent the land, and obtain from the Government loans under the Board of Works for buildings, drainage, planting, and making roads, &c.; certainly large companies would be better security than private individuals. However, there should be obtained for such companies the same right as railway and other companies, for the compulsory purchase of the land from the occupiers. The tendency hitherto of manufacturers has been to crowd the labourers in great towns as the centres of employment. The aim of these companies would be to carry their labourers into the country, so as to be near the place of work.

#### THE SCIENCE AND ART OF EDUCATION.

In the first of a course of lectures, in connection with the Governors' Association of Ireland, in the Theatre of the Royal Dublin Society, Dr. Ingram, F.T.C.D., in the chair, Professor Payne, of the College of Preceptors, London, made the following remarks:—The report of the School Inquiry Commission on second class education gave a most unsatisfactory report of the state of the schools; but it was all owing to untrained teachers and a bad method of teaching, which could hardly lead to a better result. As to private schools, the commission were of opinion that a great proportion of them were inefficient, and the evidence pointed to that conclusion with remarkable unanimity. A similar report had been made by the commission of the ordinary middle-class girl's school—deficient in method and organisation, inattention to rules, and a general deficiency in the most important subjects of a girl's culture. As to elementary education he need hardly refer to it, having treated it so often before, but he could only say that although they were surrounded by nations like Germany, Switzerland, Holland and even Italy, that held a common view as to the necessity of cultivating children's minds carefully, they still maintained a system, which he had no hesitation in saying studiously ignored cultivation. Why that should be the case was a matter he did not pretend to solve. Its fruits were crude and most unsatisfactory. It was only by producing entire conviction on these points that he could establish his argument that they needed, and must have a thorough reform before things could be better. They had no lack of teachers of science, of the languages, indeed of every subject that constituted knowledge, but of men who had made a real study of the minds of children, and of the best way of developing their qualities, they had unfortunately very few. The main question before them was the meaning of the word education. As it was generally understood, it was the most elastic word in the language—for any attention whatever shown by teachers in their conduct to pupils went by the name of education. Methods which led to the most contradictory results were called education. That random and unwarrantable use of the word had led to conferring it on persons who had no claim whatever to it, who did not even know the meaning of the word. Very much of the failure in results was due to that fundamental ignorance of what was really meant

by education. Giving instruction, as ordinarily understood, was not education. Education meant to build up with special materials, and always with a definite result in view. It was essentially culture. Nature in the development of talents was the great educator, and they should take nature as their example in stimulating the development of a child's mind, and guiding and directing it when unfolding its powers.

#### THE SHANNON DRAINAGE.

Mr. Hamlet Thompson, High Sheriff of King's County, writes on this subject:—"As a matter of course, each proprietor views the question with reference principally to his own interests. So far as it affects me, the scheme involves very serious loss; in fact, if carried out, will amount to the confiscation of that portion of my estate bordering upon the river, or affected by its drainage. I am rated in the schedule for £7,000, the annuity upon which will be close on £800 for 35 years; this is, in fact, more than double the fee simple value of the land!! Upon what principle the calculation has been made it is hard to say, but it is evident from the above fact, that the engineer, be he English or Irish, did not make himself acquainted with the circumstances of the case. Surely if the Government wish to confer a boon upon Ireland by granting a loan for the drainage of the Shannon, they should do it gratuitously; they should not be generous at the expense of others. The importance of the Shannon drainage question does not lie in the number of acres along its banks which may be improved; but lies in this, that it is a national disgrace that a great river should be allowed to scatter its waters into lakes and swamps through its whole course, not only to the injury of the land, but to the injury of the climate, by causing a stoppage of the drainage of its tributaries for miles and miles away from its banks, and through parts of the country at a long distance from its borders. The drainage of this river is, and ought to be considered, a national undertaking, the expense of which should be borne by the National Exchequer, and not imposed as a tax upon individuals who may or may not be, and most likely will not be, benefited one farthing by the outlay."

#### NOTES OF WORKS.

The building committee of the intended new R.C. church at Maynooth College, held a meeting during the past week, when Mr. J. J. McCarthy, R.H.A., was appointed architect; and instructions were given for the preparation of the plans for the building. A large amount has already been subscribed, and we understand the new building is to cost a large amount.

We learn from the *Tralee Chronicle* that the remarkable building known as the "Monument," near Listowel, erected as a mausoleum by one of the old earls of Kerry, is about to be restored by the Marquis of Lansdowne, from plans, &c., by Mr. James Scanlan.

#### HOME AND FOREIGN NOTES.

**NEW OPERA HOUSE, LONDON.**—The Metropolitan Board of Works have granted a site to Mr. Mapleson, on the Victoria Embankment, for a new opera house and academy of music. The site comprises five acres, at a rent of £3,000 a-year. Architects from all countries will be invited to compete. The cost is estimated at £150,000.

**OVER-DARWEN.**—Following on Dr. Stevens' report of the fever epidemic and frightful unsanitary condition of Darwen, the Local Government Board have deputed Mr. Basil Cane, one of the council, and Lieutenant-Colonel Cox, one of the engineering inspectors of the board, to proceed to Darwen to hold an enquiry into the action of the local authorities, and other matters alluded to, or suggested, by Dr. Stevens' recent report. The inquiry opened several days since. Some fearful revelations were made by the witnesses examined, to which we shall allude in our next.

**THE QUEEN'S THEATRE OF VARIETIES.**—Since the building in Great Brunswick-street has been opened under the management of Mr. Arthur Lloyd, it must be admitted that he has earnestly endeavoured to make it a respectable place of amusement, and he is being fastly rewarded by the increasing patronage of the public. The house has been recently re-modded, and elegantly decorated, and many changes for the better have taken place. The pantomime, "Jack and the Beanstalk," is well put upon the boards nightly, under the direction of Mr. George Lloyd, brother to the lessee. It is highly deserving of support from our play-going citizens.

**THE PATENT LAWS.**—An important question under the Patent Laws has been decided on by the Court of Queen's Bench. The Crown has the right to make, without payment of royalty, any patented article required for the public service, and Mr. Dixon, the holder of the patent for the Martini-Henry rifle, raised the question whether this privilege extended to any person other than himself with whom the Government might contract to supply arms. The court ruled that it did not, and remarked that the inventor's hope as to remuneration was that he should supply the Government with the article. The Small Arms Company will, therefore have to pay the royalty on 13,875 rifles.

**DEATH FROM SCALDING.**—A young man accidentally fell into a well of boiling liquid on Wednesday night last, at Mr. Mooney's chemical works, Sir John's-quay, where he was employed. He was at once taken out by fellow-workmen, and conveyed to Sir Patrick Dun's Hospital, but he died two hours afterwards. Deceased was running across the yard to the adjoining premises of Mr. Bethell, which were on fire.

**ASPHALTING THE STREETS.**—Some days ago Committee No. 1 of the Corporation received a tender from the Irish Val de Travers Paving Company (Limited) to lay down their best Val de Travers mastic asphalt in the principal streets of the city on the following terms, viz:—2-inch asphalt on 9-inch concrete foundation, at 14s. 6d. per square yard; 1½-inch asphalt on 6-inch concrete foundation at 12s. per square yard; upon which the committee made the following order, viz:—"The committee cannot for the want of funds lay down asphalt upon roadways, unless the inhabitants pay half the expense, as in Henry-street."

**THE BALFE MEMORIAL.**—At a meeting of the Memorial Committee, after considerable discussion, the following resolution was carried:—"That the best energies of the committee be directed to organising a subscription for a memorial to our distinguished countryman, Balfé, the form of which the committee will determine when aware of the resources at their disposal; any previous resolutions of the committee inconsistent herewith to be hereby so far varied."

**DR. DRESSER'S "STUDIES IN DESIGN."**—We have received from Messrs. Cassell, Petter, and Galpin, the second part of "Studies in Design for House Decorators, Designers, and Manufacturers." The part before us (containing three sheets in chromo) affords a fair sample of what the work will be when completed in twenty half-crown parts. The author's name is well known in the artistic world.

**WINES AND SPIRITS (Foreign)** on which duty was paid in London by some of the principal firms during the past year:—

WINES (FOREIGN).		SPIRITS (FOREIGN).	
	Gallons		Gallons
W. and A. Gilbey ..	886,298	W. and A. Gilbey ..	348,594
Dingwall, Portal, & Co.	130,682	Twiss and Browning	193,211
F. W. Cosens ..	115,800	Daniel Taylor & Sons	165,065
R. Hooper and Sons	103,095	Trower and Lawson	163,687
Max Greger and Co.	100,166	Dingwall, Portal, & Co.	136,794
D. Taylor and Sons	86,556	Galbraith, Grant, & Co.	91,828
Dent, Urwick, & Co.	79,791	R. Hooper and Sons	84,264
Cunliffe and Co.	78,251	E. S. Pick and Co.	65,362
T. W. Stapleton & Co.	76,834	R. Burnett and Son	58,691
W. J. Murray ..	76,292	Dann and Vallentin	56,329
H. T. Mayfield ..	73,665	Osmond and Co.	56,181
C. G. Phillips and Co.	72,002	Fulcher and Robinson	46,519

Besides the preceding there were about 2,000 firms who paid duty on wines and spirits in less quantities than those above mentioned.—*Wine Trade Review*, 15th January, 1875.

#### TO CORRESPONDENTS.

**CITIZEN.**—The Local Government Board will without doubt, on the reception of a proper requisition, appoint a day for holding of the enquiry.

**ANTIQUARY.**—You will probably find what you want at Mr. Kelly's, Grafton-street and Ormond-quay; or at Mr. O'Daly's, Anglesea-street. The books are now getting scarce.

**ACKNOWLEDGMENT.**—M. P. O'F. desires us to express his acknowledgment of notes from T. D. G. with thanks.

**SANTAS.**—Both subjects are treated in present issue.

**C. E. (London).**—To your first question we reply Yes, to the second No.

**A BUILDER (Cork).**—The materials can be had in this city.

**MINTON'S TILES.**—A correspondent is referred to our advertising columns for his own choice.

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## NOTICE.

Title-page and Index for our 1874 volume is now ready, price 2d. to non-subscribers. Can be had at the office, or post free for 2½d. in stamps.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

Correspondents should send their names and addresses, not necessarily for publication.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

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# The Irish Builder.

VOL. XVII.—No. 364.

*The Literature of Gothic Architecture in Ireland.\**



THE revival of the Pointed or Gothic style in Ireland was characterised by the erection of churches of a very jejune kind, betraying an absence of the true principles, and poverty in design and ornament. Some of the attempts at ornamentation,

when viewed in the light of the present day, appear ludicrous and barbarous; yet the public prints contemporary with their erection described them as grand and noble.

In the last section of his work, Mr. Bell treats "On the Revival of Gothic Architecture in Modern Times." Writing about 1828-9, we are afforded an insight into the views then held and the state of the revival, as far as this country was concerned. Mr. Bell tells us that both in Dublin and other parts of Ireland a number of churches had been recently erected through the influence and energy of prelates who presided over the interests of the national church. He instances the principal of the edifices as the Castle Chapel, the north transept of St. Patrick's Cathedral, the parochial churches of St. Michael and St. Paul, the Chapel of the Orphan House, &c.; and in the County Dublin, the churches at Booterstown, Dundrum, Cullen's Wood, Rathmines, Donnybrook, Kilgobbin, &c. In the country, he points to Swords, at Collon, the seat of the late Lord Oriel, at Newry, "and at other places throughout the several dioceses described."

At Ballynagal, in the County Westmeath, we are told "a very fine church has been built, under the inspection of Mr. Hargrave, architect, which was chiefly founded, or at least embellished, through the liberality of James Gibbons, Esq., equal at least in point of beauty to any other." We are, however, told, further on, that much of the beautiful effect "is derived from the appropriate embellishment of stained glass windows, which have been judiciously and very generally introduced." The glass of the churches at Ballynagal and Collon was supplied by a Mr. Lowe, a metal sash manufacturer for many years resident in Marlborough-street in this city.

Mr. Bell goes on to say—"A taste for Gothic places of worship has not, however, been confined to churches of the Establishment. Three or four of them have been recently built for the Roman Catholic congregations, which prove a considerable ornament to the city of Dublin, and the existence of a very laudable zeal for the decent and orderly celebration of the public worship of the deity. Indeed it is not surprising that Roman Catholics should be partial to such structures. With the zeal and piety of their ancestors, whether ill or well directed, the Gothic Order originated, and by their taste

it was carried to the perfection which it formerly had acquired. There can be little doubt, should this taste continue in fashion for any length of time, that a new era may spring up in the annals of Gothic architecture; and as former ages may have been memorable for the various fashions of this class of architecture which distinguish them, the future historians of this art may have to invent some novel term by which to denominate the style that has recently been introduced."

Further, Mr. Bell, in speaking about the Revival in Ireland, writes:—"The revival of this taste in Ireland has been accomplished, or at least the correct ideas of it prevail in this country, have been principally introduced by a gentleman whose numerous architectural works will hand down his name with respect to our latest posterity. I of course allude to the architect of the Castle Chapel" [Francis Johnston].

The Castle Chapel was commenced about 1807, the year the old one was pulled down, and it occupied seven years in its completion. It was opened on Christmas Day, 1814. Its architecture is described by Mr. Bell, and there is another description of its style with an illustration in Wright's "Dublin," drawn by the late George Petrie, R.H.A. The Castle Chapel, at the period of its erection and for some years after, was, in our opinion, the best specimen in this metropolis of the revived art. Most of all the other new Gothic churches mentioned by Mr. Bell were of the poorest description, and some of them hardly deserved the name of "Gothic," unless we read that word as "barbarous." We are not aware that Mr. Bell's description of the architecture and embellishments of the Castle Chapel have been reproduced. It differs in some particulars from that of Wright, in 1821. Though the edifice can be viewed by our citizens, internally as well as externally, at any time, yet as Mr. Bell's account contains other matters not generally known, we think it will not be amiss to reproduce it here:—

"The Castle Chapel consists merely of a choir, without either nave or transepts, and measures 73 ft. in length by 35 in breadth. It is built in a rich style of decorated Gothic; the lower windows are of that depressed curvature which is generally known by the name of the Tudor Arch. The upper windows are of the pointed equilateral form, divided by transoms and mullions of perpendicular architecture into three compartments, with trefoiled ogee heads. The lower windows are divided into similar lights with circular heads, or quatrefoil in the top of each. The eastern window is embellished with a large picture of stained glass, which formerly belonged to one of the churches in Flanders. It came into the hands of the late Earl of Whitworth [Lord Lieutenant] by purchase, when he was ambassador on the Continent, and he presented it as an embellishment to this beautiful chapel. The subject of the picture is "Christ before Pilate," and beneath it are the four Evangelists in as many compartments of workmanship. A fine group representing Faith, Hope, and Charity, modelled by Smyth, crowns the summit of the window. The vaulted ceiling of the chapel is supported by groined arches, which spring from Gothic shafts upon one side, and corbel heads upon the other, enriched with rich stucco tracery to resemble stone. The wood is of fine oak, superbly

carved, with curious Gothic ornaments; as also are the panels round the galleries, pulpit, &c., with the arms and mottoes of the several Lord Lieutenants as deputies who have from the reign Second Henry ruled over this country. The pulpit is appropriately ornamented with the arms of the archiepiscopal dignitaries of the Church of Ireland; and the pillar which supports the pulpit, by a very happy idea, is made to rest upon, or spring out of that book in which we are emphatically told is eternal life. All these carvings display superior workmanship, and are the production of Stewart, an artist whom this work first brought into public estimation."

"The exterior of the building is equally beautiful. It is built of black hewn stone [the calp of the County Dublin], a material much better suited to the solemn aspect of the structure than the sparkling granite which has been used in building some of these modern Gothic churches. The six windows on the north side, and the same number on the south are separated from each other by seven square buttresses, which terminate in decorated pinnacles. The spaces at the top of the walls between these buttresses are embattled, and finished with carved mouldings; and the canopies or drip stones over the windows are supported by well-sculptured corbel heads, either of kings and bishops or of saints and martyrs, both male and female, all executed by the late Edward Smyth and John Smyth, his son, both very eminent in this art, as their works here and elsewhere sufficiently testify. The eastern end is formed by an embattled pedimented wall supported by buttresses similar to the sides, between which the east window is placed. The canopy over this window is supported by corbel busts representing Prayer and Adoration, and the summit of the arch is crowned with a beautiful half-length figure emblematic of Religion, with her cup. Beneath the window is a Gothic door to the basement storey, whose drip stone is supported corbel-wise by St. Patrick and Brian Boiromhe—two figures which, to a passing observer, have the appearance of being rather pressed into the service of supporting the portals of a chapel of the Established Church. Over the door is a marble tablet, on which is engraved in old Roman capitals, the inscription—

X  
HANC EDEM  
DEO OPTIMO MAXIMO OLIM DICTATUM  
VETUSTATE PENATUS DIRUTUM  
DEUS EXTRUJIT  
JOHANNES BEDFORDIA DUX HIBERNIAE PROREX  
IPSEQUE FUNDAMENTA POSUIT  
ANNO A CHRISTI NATO MDCCCVII."

The name of the architect should, in the opinion of Mr. Bell, be inscribed on the tablet containing the above inscription, "to render complete information it was intended to convey to posterity." From the description quoted it may be seen that the Castle Chapel, though small in size, yet in style and ornamentation it was rather in advance than behind the time at the period of its erection. Although Johnston was not a master of Gothic detail, and considering that his practice was mostly confined to the older style of architecture, yet he has in the Castle Chapel furnished proof of a respectable acquaintance with Gothic design. Let it be remembered that Francis Johnston died as far back as 1828, fastly approaching on half a century, and long before the impress of the elder Pugin's mind was felt earnestly appealing and working in favour of the Revival of

\* See ante, p. 29.

Christian architecture. When Francis Johnston died, Augustus Welby Pugin was about in his seventeenth or eighteenth year, and indeed little earnest work was accomplished in England before Pugin's day. There were few books treating of Gothic architecture in Johnston's time, and none of the nature that are available now. Johnston had no examples to follow, unless he studied the early and mediæval examples that studded the country; but, being an able architect, and exhibiting originality in Italian architecture, he was certain not to wholly fail in Gothic.

We mentioned in our former paper that Johnston added a chapel to the infirmary at the Foundling Hospital (now the South Dublin Union Workhouse). The infirmary as well as the chapel was by our architect, but the latter was in the Gothic style. This chapel is 70 ft. long by 50 ft. wide inside; the nave or centre aisle is 70 ft. by 15 ft., and is divided on each side by six pillars formed by a union of six others, and which supports the gallery and roof. There existed no great necessity of ornamental display in the structure; we only cite it as one of Johnston's Gothic works, finished about 1816. The entrance gate to the Royal Hospital, Kilmalsham (previously mentioned), removed from Usher's Island, appears to be the last specimens of Johnston's public works of the Gothic style; it was erected, we believe, about 1818. The last public work with which Johnston's name was associated was the Royal Hibernian Academy in Abbey-street, of which he was the architect, founder, and first President. Mr. Bell writes:—"But eminent as is the taste and skill displayed in the professional works of this gentleman, both in Classic and Gothic Architecture, it is not by his pre-eminence in either that in times now shrouded in futurity and far remote from the present he will principally be distinguished. It is the noble, the munificent endowment of an Academy for the culture of the arts of his native country which will perpetuate his memory to generations yet unborn, while the arts of painting, sculpture, and architecture shall continue to be prized or practised."

In relation to the same gift, Wright says:—". . . . . a monument such as the pride of kings could not confer, and has left to posterity a name to be cherished and revered while the arts shall have an existence in the land." This is high praise for a native architect that earned fame by his classical works, and contributed, perhaps we might say led, to the Revival of Gothic Architecture in Ireland.

We will resume the subject.

#### THE ARCHITECTURAL ASSOCIATION OF IRELAND.

An ordinary general meeting was held on Thursday evening, the 28th ult.

The President, W. M. MITCHELL, F.R.I.A.I., in the chair.

Mr. R. S. Swan read a paper on "Specifications," which we print *in extenso*, revised by the author, on another page.

Mr. W. J. Fennell in proposing a vote of thanks to the author, said he preferred the general arrangement of a specification rather than that suggested in the paper just read.

Mr. J. L. Robinson (hon. sec.) seconded the vote of thanks.

Mr. J. J. O'Callaghan expressed his opinion that the shorter a specification was, the better; a great number of detail draw-

ings are preferable; it is almost impossible to finish the drawings, and then write out the specification—both should go hand in hand. Nothing should be left in doubt; everything should be shewn upon the drawings.

Mr. Sandham Symes said that "brevity" is not only "the soul of wit," but also of a specification. He liked the form of specification sketched out by Mr. Swan, having found it to work well. He thought that a specification for a £3,000 house should run over, say, twenty-five or thirty pages of foolscap, but he had heard that the specification drawn up by Pugin for Maynooth College, which cost £30,000, was written on four pages.

Mr. H. C. Brett remarked that engineers' specifications are brief because the work is more simple and less involved than architectural work.

The chairman, in putting the vote of thanks (which was carried by acclamation), said he understood that the less an agreement or specification was hampered with vague and general clauses, the more binding it was in law. Certain clauses, such as to guard against bankruptcy, are of course, necessary; but his experience was that contracts, drawn up by legal gentlemen, and running to thirty pages, were far more productive of litigation than short and simple agreements with a sixpenny stamp on them. He considered that the classification of a specification in trades was, after all, the best arrangement.

Mr. Swan returned thanks, and the proceedings terminated.

[It is a matter of extreme regret that the meetings of this Association are so poorly attended. It is absolutely painful to think that a gentleman, after spending time and care in the preparation of a paper, would be placed in the position of having to read it before an audience of ten or a dozen. If the Association is to live and prosper, we would counsel its young members to take greater interest in it, by attending its meetings when at all practicable. We are very anxious that no signs of an early decay should be exhibited.—ED. I. B.]

#### THE ROYAL HIBERNIAN ACADEMY.

The annual exhibition of painting, sculpture, and architecture, opens to-day at the Academy House, Lower Abbey-street. His Grace the Duke of Abercorn and party will be present at three o'clock.

#### ECONOMY IN GAS BURNING.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—As it appears that the illuminating power and the price of gas varies according to the consciences of the directors of the gas works, we may expect to be occasionally left in "darkness visible," and have bills of excessive amount to pay.

I would, therefore, suggest that the present mode of burning gas should be discontinued, and a more perfect and economical one adopted. By the ordinary arrangement of gas lights we illuminate the walls and ceiling of the room, and the table, which ought to be lighted, is generally completely in the shade. The quantity of light is also much diminished by the use of ground glass globes. To obviate this difficulty, and to obtain the best results, the ground glass globe should be rejected, and the burner should be placed horizontal. In this position the flame assumes a curve eminently calculated to illuminate the table, and an enormous increase of light is obtained. By this simple arrangement, which may be made elegant and ornamental, the light will be so much increased, a smaller burner will suffice, and at least 25 per cent. of gas will be saved. The No. 5 gas burner usually supplied to the public consumes about

5½ cubic feet of gas per hour, a quantity which will be found excessive if the proposed arrangement be adopted.

The following table, with the rate of consumption, will enable consumers of gas to select suitable burners for themselves:—

No. 1 Fish-tail consumes	2 cubic ft. per hour.
No. 2 do.	2½ do.
No. 3 do.	3½ do.
No. 4 do.	4½ do.

I believe No. 3 will be large enough if employed in a horizontal position.—I am, sir, your most obedient servant,

JAMES SPENCER.

19 Grafton-st., 11th Feb., 1875.

#### SANITARY AND OTHER NOTES.

**BLACKROCK.**—At a late meeting of the commissioners, the surveyor submitted plans, &c., suggested to be furnished on the recent report of Mr. Barry upon the People's Park, and stated that a solvent contractor could be found to finish the works for £1,000. It was announced by the chairman that it had been unanimously decided by the board to remove the circular dams. Captain Betham moved a resolution to the effect "that the plans and specifications of Mr. Barry's plans, as suggested in his report to the board, he submitted to him for his approval, and that on their return Mr. Barnes's plans and bills of quantities be submitted, together with Mr. Barry's, to an independent engineer, to decide which of the two sets is best, and least expensive. The surveyor stated that Mr. Barry had estimated his own iron-pipe sewerage scheme at £1,332, and Mr. Barnes's at £1,882; but he (the surveyor) was confident that the former could not be carried out for less than £1,900. Mr. Magrath asked the board to order the asphaltting of the footway from Main-street to the chapel gate. Mr. Crowe opposed the expenditure, and no action was taken in the matter.

**BRAY.**—The perforation of Bray Head, commenced by the Railway Company some months ago, was successfully completed on the 3rd inst., when the separate gangs of workmen engaged on the opposite sides met at the same point, and joined in loud and hearty cheers upon having accomplished the tedious and laborious work. Comparatively little difficulty remains to be overcome in the completion of the line at this point.

**GRAVE DOINGS.**—At a recent meeting of the guardians of the North Dublin Union it was stated that William Proude, the caretaker of Finglas graveyard, reported that on the night of the 28th ult., a number of men and women interred a child there, and refused to pay the burial fee; that one of the funeral party used abusive language towards him; and that such was the tumult they created that he could not obtain the necessary information to register the burial. Since the occurrence he had had a lock placed on the gate, the police having stated that unless that was done they could not interfere to prevent trespass. It was finally agreed, on the suggestion of the chairman, to obtain the sanction of the Local Government Board to the scale of fees to be charged, and to have them posted on the gate. The chairman mentioned that a scandalous occurrence recently took place at Abbotstown Graveyard. At an apparently respectable funeral a number of people got tipsy, and actually pitched bones and debris of coffins over the wall into Mr. Hamilton's demesne. It was decided to request the Local Government Board to take action with the view of having Abbotstown graveyard closed.

**RATHDOWN.**—At a meeting of the union sanitary authority, an application under the Public Health Act, for borrowing powers to the amount of £1,200, was made from Greystones for water supply of that district, and approved of.

**"WAKING THE DEAD AND KILLING THE LIVING."**—At Castlebar a girl named Harlow having died of smallpox, which is now prevalent in Mayo, a large party of her friends assembled at the workhouse, and demanded the corpse for the purpose of having a "wake." Owing to their demerour, they were allowed to have the body taken to her residence, but the police were immediately communicated with, when R. Harvey, Esq., R.M., Sub-Inspector Pepper, and a strong posse of constabulary repaired to the scene, and prevented the relatives from holding a "wake," and thus avoided the risk of a further spreading of the disease.

William Sothern of Bridgefoot-street, has been fined £20 for having on his premises nine stone weight of pork for the purpose of being converted into sausages, but which was unfit for human food.

### THE DUBLIN MECHANICS' INSTITUTE.

IN the thirty-seventh annual report of this Institute, recently issued, the directors deplore, with good reason, the apathy manifested by the very class for whose interest the Institute was founded. From their report it appears that, notwithstanding the discouraging circumstances that surround the conduct and upholding of the Institute, they are in a better position than they have been for some years back. They are out of debt, but the balance in hands is scarcely worth naming. As citizens we can of course see, and have for many years seen, that the efficiency of the Institute is sadly crippled; and the only way to make it not merely self-supporting, but with a large balance in hands, is to increase its efficiency by an accession of members. Human nature, however, is human nature everywhere, and for the few that exist of a self-denying and generous turn of mind among our artisans as well as among other classes, there are hundreds who will not help any organisation or institute unless it can aid them in some way in return. The more inducement any public institute can hold out to intending members, the more members such an institute is certain to receive.

The French, English, mathematical, and science classes of the Institute have at different times been poorly attended and poorly managed. The science class of the Institute has never been in past years really what it ought to be, and of late years the directors, from want of funds, were unable to put it on a proper footing. Chemistry, geology, mechanics, and electricity are four very good divisions for classes, and in connection with the Science and Art Department of South Kensington there is an opening for artisan students distinguishing themselves. The present conductors of these classes—Messrs. Bayly and Arnold, we believe—are equal to their duty, and have given satisfaction. A class to teach the Irish language is, we are told, now formed, and doubtless there are many young Irishmen who will avail themselves of the opportunity.

In the interests of science, art, and handicraft, however, there is need of a more extended field of instruction in our Dublin Mechanics' Institute. A real systematic technical class-instruction is needed for the artisan classes, where, by the aid of drawings, casts, and models, the science and principles of construction may be taught and illustrated. A series of practical lectures could also be organised, to be delivered by competent persons, taking up several trades in succession, beginning, say, with masons, carpenters, bricklayers, smiths, coachmakers, painters, plasterers, metal workers, and so on. The routine usages, tools, mechanical processes, the principles of construction and illustrations of the workmanship of these trades by the aid of drawings and models, and all technical matters appertaining, combined with suggestions for improvement in the different branches—such a series of lectures would be attractive, and would soon fill the hall of the Institute with classes, and increase the list of members.

Several years ago chemical lectures and experiments were successful, and used to fill the theatre of the Institute with good audiences. With an energetic directory, we have no doubt but that the Institute could be soon placed in a position not only equal to its past at its best period, but far exceeding it. It would not be difficult, in our opinion, to secure a sum to be devoted for prizes to successful students who would distinguish themselves in scientific knowledge. In building construction alone there is a wide field for the display of scientific, artistic, and mechanical ability and taste, and we are certain that among the architects and builders of Dublin would be found men who would willingly contribute a sum towards prizes, and in support of classes devoted to imparting a better technical knowledge to young men and apprentices engaged in the building branches. We may be too sanguine, but nevertheless

we have given expression to our opinion. We would like to see the Dublin Mechanics' Institute well supported; but a bold and earnest effort is needed on the part of its board of management to make it more attractive, and better entitled to the support of the working classes.

### THE NEW ORGAN, WHITECHURCH CHURCH, COUNTY DUBLIN.

ON Sunday, the 7th inst., the new organ erected for this church by Messrs. Brown and Son, of Camden-street, was opened. It is a highly-finished instrument, and is placed within a double-arched chamber in the chancel. The open diapason pipes, which are handsomely decorated, stand on a projecting impost, supported by Gothic brackets, within one of these arches; in the second are placed the bourdon pipes, which are also decorated. The case is of Riga oak polished. The organ consist of two manuals from CC to G, and pedal. The stops are as follows: Open diapason, 8 ft., metal; dulciana, do.; rohr flöte, 8 ft., wood; principal, 4 ft., metal; leiblich flöte, 4 ft., wood; flautina, 2 ft., metal; oboe, 8 ft., metal. Choir organ—Viol de gamba, 8 ft., metal; leiblich gedact, 8 ft., wood; flute harmonique, 4 ft., metal. Pedal organ—Bourdon, 16 ft., wood; couplers; swell to pedal; choir to pedal; swell to choir. The tone is round and full, combined at the same time with much sweetness, delicacy, and variety. The instrument reflects much credit on the builders, and is another proof of what can be done in our city.

### BOOKS RECEIVED.

*Hints to Young Architects, &c.* By George Wightwick, Architect. A new edition, revised and considerably enlarged. Comprising Treatises on the Principles of Construction and Design. By G. Huskisson Guillaume, Architect. London: Lockwood and Co.

THIS is a new and greatly improved edition of a book which, in its first form, has been for some years before the public. It can be recommended with confidence not only to young architects, but to many of the elder brethren, and not only even to these, but to engineers, surveyors, clerks of works, building foremen, and operatives. It embraces almost everything of importance in connection with the routine and practice of the architectural and building professions. The book is divided into seven parts—School Studies, Studies Abroad, Early Practice, Principles of Construction, Sanitary Construction, Design, Model Specification, with Miscellaneous Hints and Cautions respecting building matters. The book is well and fully illustrated throughout with numerous diagrams, incorporated with the letterpress. The additions by Mr. Huskisson Guillaume greatly enhance the value of the book. The chapter on "The Principles of Construction" is one of considerable value, and should be studied by young architects and building foremen. In respect to the advice given on architectural taste in the chapter on "Design," there may well exist a difference of opinion; but no painstaking student can fail in having his ideas much enlarged and improved by a thoughtful study of the remarks made. An architectural opinion is easily formed, but it is impossible for any one mind to mould anew the architectural taste or fashion of our day. Greek, Roman, and Gothic, and so-called Queen Anne and make-believe Victorian styles, are ever in a state of transition. Fashion is restless, and architectural taste must more or less be the offspring of fashion, the one, of course, reacting upon the other. He that desires or aims to dictate on architectural taste will always fail. Without dictating a taste we may essay to aid and lead one, but

we cannot do much more in one generation. Confining our remarks to the strictly technical and practical portions of Mr. Wightwick's book, and to the additions of Mr. Guillaume in the same direction, we must say that the work under notice is an admirable and most useful volume. In our memory such a book would be cheap at a guinea, if the architectural ability of the times was capable of producing it; but even now this book would not be dear at a half a guinea; instead, however, it happens that the work under notice is but a third of the latter sum. The "Model Specification" is worthy the serious attention of some of the junior architects in our midst, if they would improve their ways for the benefit of their clients and our building contractors and workmen.

### FRIENDLY SOCIETIES.

THE bill introduced by Sir S. Northcote is one of importance to the working classes. It was framed somewhat on the same principle as the one introduced last year, but changes had taken place. From the statement made by the Chancellor of the Exchequer, local registration would be abolished, the bill proposing that registration should be carried on in the same way as at present, with the distinction that the registry for Ireland and Scotland should be subordinated to the chief office in London, so that there would be one system for the United Kingdom. Sir Stafford Northcote said that as the main principle of the bill was to give information to members of societies, the Government had thought it best to omit a clause which appeared in the previous bill, giving power in certain circumstances to the registrar to rearrange and alter the benefits and constitution of a society, but the present bill would enable the registrar to investigate the affairs of a society whenever a petition was presented. They had also omitted a clause causing the registrar to get prepared tables of mortality; but the Government intended what they could do without any Act of Parliament—to give directions for the preparation of tables for the information of members of societies. It was also intended to give the societies more latitude as regarded investments, but it would be provided that there should be a proper system of audit. They desired to do away with the restriction in the bill of last session with reference to the insurance of children under three years of age, so far as it extended to the prohibition of insuring the child in more than one society; and he took the opportunity of disclaiming any intention on the part of the Government to cast any reflection on English parents generally, but there were persons to whom children were entrusted who would avail themselves of any laxity in the system. It was not intended to introduce any unnecessary Government interference with friendly societies; but, on the contrary, the intention was to leave that good work which had sprung from the people to go on by the operations of the people themselves, the Government desiring only to assist them in doing the work. They proposed to fix the limit of insurance of infants under three years of age at £3, instead of 30s. He hoped there would be no objection to the introduction of the bill, which did not apply at all to ordinary insurers, but only to members of friendly societies.

The principle of the bill is good, but the giving of power to the registrar of such societies was rather an extreme power. It was suggested by Sir G. Bowyer that, before any officer dissolved any society, he should be bound to report in detail to the society in question what he considered its defects, and that he should only be empowered to dissolve when the defects were not remedied. We think that trade and friendly societies throughout the kingdom should be afforded a full opportunity of expressing their opinion upon the bill before it is pushed much further through the house.

### THE SCOPE OF MUNICIPAL GOVERNMENT.\*

THE subject of Municipal Government and Taxation is receiving of late more general attention than it received for many years previous. Those who are old enough to remember the interest excited by the passing of the English Municipal Corporations Act of 1835, which led the way for the Irish Act of 1840, must have a keen recollection of the hopes, jealousies, and passionate exultations manifested by political parties on either side. In Ireland, and particularly in Dublin, the introduction of the Irish bill was looked upon with a popular delight, and the passing of the measure was hailed with satisfaction. "Municipal Reform!" was the cry on every side, and the old Corporation became the theme and target of many onslaughts—some of them deserved and others unjust. Had the men who sat in the first "reformed" Municipal Council of this city, or those in the Parliament or the Press outside who associated with them, been told that in less than a quarter of a century the new Corporation would become worse than the old, no man would have believed it. Nevertheless, as a matter of simple truth, it must be acknowledged by all honest and disinterested persons, that the composition of the Dublin Town Council for many years is far inferior to its early days or to the old *regime*, and in the conduct of affairs it affords a sad commentary on the past. This is not only the opinion of outsiders, but also that of members of the Civic body. "Municipal Reform" becomes as necessary as a public cry and a public work now as it did upwards of thirty years ago; but though the manner to effect the reform is plain enough, yet the obstacles in the way of achieving it are many. Nothing short, of course, of a legislative measure can effect it now, because there is not as much honest public spirit in Dublin available to carry it out without legislative interference. The ratepayers have it in their power, but, as a body, they are not inclined to move to rid themselves of an incubus which creates other incubuses. Our municipal system is bad because corrupt men administer it, and because it is made a political machine for the working of political and private ends. When municipal councils cease to be political, and cease to be utilised by the leaders and spokesmen of political factions, then and then only will there be an apparent reform.

Mr. Todhunter Pim, in a very clear and well-written paper, read last month before the Statistical and Social Inquiry Society of Ireland, and now published in pamphlet form, has examined some of the chief evils of our municipal system, and pointed out what he and others consider the reforms which are necessary. He is not in favour of blindly following the English system, but of constructing one practically better fitted for the peculiar circumstances of this country. He is quite in favour, however, of the proposal that the qualifications for the municipal franchise in Irish boroughs should be made identical, so far as rated occupiers are concerned, with the qualifications under the English Act of 1869, provided that this extension and reduction of the franchise is accompanied by such provisions as will give property adequate representation. He thinks those provisions are absolutely essential in justice to the owners of property, and even in the interests of the poorer classes themselves. It is well known at present that the large ratepayers in Dublin are outvoted by

the small, and very many examples are quoted of streets in Dublin with their occupiers compared with other streets. According to the tables furnished, there is in round numbers one burgess to four occupiers and £150 valuation in the first class streets, against one burgess to two occupiers on £52 valuation in the second class streets, which gives a proportionate representation of property in the inverse ratio of one to three. Now, though far from wishing to see the rights of the poorest curtailed, and wishing to see the franchise exercised equally by rich and poor, still under the present system in Dublin public improvements of a sanitary kind are rendered most difficult, and sometimes impossible, unless an injustice is done to one class.

Corporations in general have now to incur greater debts than formerly, in consequence of different Acts of a town improvement and sanitary tendency. On some of these public bodies devolves the providing of gas as well as water supply, drainage and sewerage, and other objects for which Acts provide the striking of a rate to carry out and support. In the matter of the public health particularly, corporations have of late acquired increased powers; but, owing to our present defective municipal system, measures for the benefit of the public health have remained for years unaccomplished, although projected, and the poor themselves have been the greatest sufferers.

The Report of the Sanitary Commission of 1869-71 contains a pregnant sentence, quoted by Mr. Pim, which is as follows:—"The evidence before us contains abundant proof that sanitary reforms are in many cases rendered impossible by the hostility of the inhabitants of the poorest class." This is true, but in justice we must add that many of the middle and comparatively well-to-do class in Dublin are also opposed to sanitary reforms.

The following extract is, perhaps, more to the purpose. The Sanitary Commissioners say:—"We cannot conclude this part of our report without giving expression to our profound conviction, that no code of laws, however complete in theory upon a matter of such importance and complexity as the health of the community, can be expected to attain its object, unless men of superior education and intelligence throughout the country feel it their duty to come forward and take part in its working. The system of self government, of which the English nation is so justly proud, can hardly be applied with success to any subject unless to governing bodies comprised of a fair proportion of enlightened and well-informed minds; and if this be true as a general proposition, it is especially true in regard to matters affecting public health. This is not only shown by the evidence which we have taken, but is manifest from the nature of the case."

It must be acknowledged with humiliation that our Municipal Council does not fulfil the conditions pointed out by the Sanitary Commissioners. For many years past men of superior education and practical intelligence are not to be found in our Corporation, and the exceptions that do arrive near the required standard are the leaders or spokesmen of political or religious parties or factions, and so are unfitted for their office, as a Corporation should be an entirely unpolitical body.

The suggested reform of Mr. Pim, while it recognises the popular claims to a share in the representation by adopting the proposal for the extension of the municipal franchise, makes a provision for the adequate representation of property, so that the upper classes may not be swamped by the lower. He thinks the fairest and best way of carrying out this reform would be the following scheme:—

- To confer the municipal franchise on owners of property as well as on occupiers.
- To allow the owners to elect one-half of the governing body and the occupiers the other half.
- To give to both owners and occupiers

from one to six votes, according to valuation of premises.

To give corporate institutions the right of voting by proxy.

To extend the limit of residence, say to twenty miles.

To transfer half the burden of the municipal rates from the occupier to the owner, as in the case of the poor-rate, compensating the owner in the case of existing leases by increasing the rent by an amount equal to one-half the present taxes, but allowing all future fluctuations of the rates to affect both owner and occupier equally.

The above scheme at first sight looks feasible, but it presents difficulties, no doubt, but these are not impossible of adjustment. Mr. Pim produces arguments in favour of the suggested scheme in favour of the enfranchisement of owners. It has certainly been carried in the case of elections for poor-law guardians in both England and this country, and also in elections for English local boards under the English Public Health Act of 1848 and the Local Government Act of 1858. The Sanitary Commission speaks in favour of the owners of property having a more considerable voice in the election and deliberations of town councils, "inasmuch as the powers in relation which we have proposed are so stringent, as structural works often outlasting the occupancy of any tenant may be executed." Under the poor law magistrates are made ex-officio guardians, so in this case owners of property have a half share in the representation in return for paying half the taxes.

Mr. Pim, in relation to this, says that direct representation is to be preferred to ex-officio membership, as it is more likely to bring out efficient representatives and secure a regular attendance. "The Appendix to the Report of the Select Committee on the Law of Rating in Ireland," 1871, shews that the average attendance of guardians in the whole of Ireland was (1870-71)—ex-officio, 2·03; elected, 6·75; and in the North and South Dublin Unions—ex-officio, 4·75; elected, 17·50. As under the poor-law system property owners have votes for the elected guardians in addition to being represented by the ex-officio guardians, Mr. Pim acknowledges this is giving property an undue share of the representation, and the dividing of the representation between the owners and the occupiers the preferable plan. He considers that, by allowing them to vote together as they do now for the elected guardians, and for members of local boards under the English Public Health Act, not at all a satisfactory method, for the following reasons:—"If both classes should vote together for the same representatives, the owners with the wealthier occupiers would in some cases completely outvote the poorer class of occupiers, whilst in other places the number of owners would be so small that, even with the assistance of the votes of the wealthier occupiers, they would be overpowered by the poorer occupiers—in either of which cases only one class would be represented instead of both. If the taxation is to be divided between them, it would be fairer to allow each class to elect its own representatives without clashing with the other."

Mr. Pim proceeds next to give some illustrations of the taxation of the city, in comparison with those in the suburbs of Rathmines, with a view of showing how owners are affected by improvements and otherwise, and as to the proportion of the taxation they should bear, and in proof of their claims of a share in the representation. The rate of taxation in Dublin is more than double the rate of Rathmines. "This," says Mr. Pim, "determines the comparative value of property in Dublin and Rathmines as surely as it determines the choice of a residence on the part of an occupier, and such a difference tends to its own increase, for the set of the current of the outlay of capital in building houses towards Rathmines, and away from Dublin, tends to raise the total valuation of Rathmines as compared with that of Dublin,

\* "Municipal Government and Taxation." By Joseph Todhunter Pim. Dublin: Hodges, Foster, and Co.



and consequently to reduce the rate of taxation in Rathmines and to raise the rate in Dublin. If the tendency towards the equalisation of the rent, *plus* the taxes of houses in Rathmines with the rent *plus* the taxes of houses in Dublin, the equality is arrived at to the profit of the house-owner in Rathmines, and at the expense of the house-owner in Dublin."

Mr. Pim is in favour of the plural vote, which is not to be confounded with the cumulative vote. By the cumulative system the minority have a share in the representation; by the plural system voters are entitled to give each candidate whom they wish to support a number of votes, varying from one to six, according to the valuation of their premises. In the latter system there is no accumulating of votes. Discredit has to a certain extent been thrown upon the plural system, though the Royal Sanitary Commission has pronounced in its favour; and Mr. Goschen, when introducing his Rating and House Tax Bill, said that, apart from its demerits in party conflicts, it appeared to secure that variety of representation which is peculiarly to be desired in local government.

Mr. Pim touches upon the questions of "Representation of Corporate Bodies," taxation of Government Property, and in regard to the latter, says:—"If Government property is to be taxed for local purposes, the Government has a corresponding right to be represented on the local governing board," and, depend upon it, they will claim and exercise the right. The total valuation of Dublin is £600,000, and the valuation of the Government property about £30,000. The Government would therefore have three representatives to the sixty of the Corporation.

Mr. Butt introduced two bills last session of Parliament—the first was to assimilate the Irish and the English franchises; and there are other bills introduced in the present session on the same subject. The first bill was rejected. The second bill introduced in its place does not propose to alter the franchise in Dublin, but to reduce the voting qualification from £10 to a £4 valuation in the other Irish boroughs. Mr. Pim is of opinion that, were it not for the reduction of the franchise of Dublin in 1849, in all probability we would not be now suffering from the evils which make a further reform necessary.

With a great deal of what Mr. Pim says we thoroughly agree, and few will dispute these words:—"Our Dublin Corporation does not adequately represent the property, the intelligence, and the education of the nation," nor the city; and "grievous and general are the complaints in private respecting the condition of our Corporation, and frequent the declarations that reform is needed." We ourselves would battle hard for the retention and integrity of our municipal institutions, but we would battle harder for their speedy and practical reform.

In conclusion we will add that Mr. Pim's pamphlet is worthy of perusal, and is a fair contribution to the important and pressing subject of Municipal Reform.

## PUBLIC RIGHTS AND PUBLIC NUISANCES.

### TWENTY-THIRD ARTICLE.

#### ADULTERATION OF FLOUR AND BREAD.

BREAD has not been inaptly termed "the staff of life," and it is somewhat surprising to see how long life may be wholly sustained, even in comparative health, on nothing better than bread and water. We may instance here that the most of the weak and cheap tea, when brewed by the working poor, is not much superior in nourishment than ordinary drinking water. It is warm and has a colour, to be sure, and the darker it is the more it pleases the poor old creatures whose only beverage it is from one month's end to another.

The flour and wholemeal bread baked upon the griddles of the poor in the country districts has a great advantage over the cheap huxters' bread used by the working poor in towns and cities. It is most free from any injurious adulterations. In cities like ours, however, the poor are sadly imposed upon, even by bakers in whom they have been for years wont to place the utmost reliance. The loaf is not only wretchedly bad, but it is light in weight. Flour (wheaten) is adulterated with a variety of substances, among which are rice, potatoes, bean flour, Indian corn, barley, "cones," rye, alum, gypsum, darnel, clay, flour dari, ergot, flour. This list of adulterants and impurities could be extended.

Fine wheaten flour, by recent analyses, is reported to contain—of water, 16·5; ash, 0·74; fat, 1·2; sugar, gum, and dextrin, 3·3; albuminous matters (gluten, &c.), 12·0; starch, 66·3—making up the total of parts 100·0. Good flour has a pleasant and agreeable taste, and, if acid or musty, of course it is suspicious; but flour may still have a temporary palatable taste, and yet be far from being of good quality. Women who are in the habit of baking their own griddle bread can generally make a shrewd guess at the quality, even from the feel of it in kneading.

We do not purpose to give in detail the tests for finding the different adulterants named, for they would be useless to the ordinary public and the working poor, who have not the means or the capacity of carrying out an analysis on their own part. Their tastes, however, must be very bad if they fail in discerning good-tasted bread from bad; and if they have good reasons for suspecting the quality of the bread with which they are served, they have it now in their power of reporting such cases to the sanitary officers of their district, whose duty it will be to give to the complaint the attention it deserves, with a view to a subsequent analysis, if necessary, by the properly-qualified official for the purpose.

Of bread, the made-up bread of our bakers' and huxters' shops, the common adulterants are salt, alum, bone dust, clay, carbonate of magnesium, chalk, gypsum, sulphate of copper, water, rice, potatoes, and other starches. The bread in some instances may be simply bad from being an impure or bad flour, or either injured in its keep or contact with other commodities. Alum is a very common adulterant, and bakers put a small portion of it with the flour in order to improve the quality of the bread, or, in other words, to enable them to make inferior flour into saleable bread, and to give it a white colour.

It has as yet been found difficult by public analysts to find the exact quantity of alum present in a loaf of bread. The presence of alum is often missed, from its minuteness. Good bread is always sweet and agreeable to the taste, and even at a week or a fortnight old will not grow musty in a proper keeping-place. Bread that is mixed with rice becomes soft and sodden after a short time. Some good housewives say that bread that is very crumbly after a day's keep is not good; and that when the loaf crumbles much on cutting, it is an indication of alum.

The tests at present for finding alum are unreliable; and where the quantity is very minute, the difficulty is more so. From the use of a minute quantity of alum there is no danger, but it is to be feared that in some instances the quantity is nowise small; and, though it may not be exactly dangerous to the health, it is necessary to discover to what extent alum is used by our bakers. Health apart, by the use of alum we know that inferior bread is imposed on the poor, and they are manifestly cheated in having to pay a price for a loaf that it is not worth, from its inferior quality.

Bread is physically different from flour, but, chemically speaking, flour and bread present little difference; as flour is chiefly starch, so also is bread. Flour bread is rich in water, the mean percentage of water, according to Oldling, being 43·4; the extremes of 25 specimens of loaves being 38·6,

and 46·7 per cent. water. In bread baking, the flour is mixed with a certain quantity of water, which, in the baking of the loaf, is driven off, but not as a whole, since some bad or adulterated flour retains a quantity. Good bread ought not to contain more than 40 per cent. of water, and, when analysed, should not leave more than 1½ per cent. of ash when burned on platinum foil. Dr. Wanklyn states that he found in a sample of fine flour, price 2½d. per lb., 16·5; in "second" flour, price 2½d., 15·7, per cent. of water. In other samples of flour, drying at a lower temperature, he obtained 14·0 per cent. and 14·4 per cent. of water.

The same authority says:—"If it be required to find out whether or not plaster of Paris has been used to adulterate a sample of flour, a determination of ash may be resorted to. With the object of testing the working of this method, I adulterated a sample of flour with about 6 per cent. of plaster of Paris, and then determined the ash. The result was striking and satisfactory. The only caution to be given is not to mistake the coke yielded by flour in common with most nitrogenous substances for the ash. Re-ignition will diminish the coke, but not a genuine ash. If, therefore, a sample of fine wheaten flour yield sensibly more than 0·7 or 0·8 per cent. of residue, which does not burn away on repeated ignition, there must be something wrong in the flour. Every case of replacement of flour by a mineral material cheaper than flour would be most satisfactorily dealt with by the incineration test."

Perhaps there is no substance more adulterated than wheat flour; but happily at present there are a number of very good tests for detecting the adulterants, and under the Sanitary and Adulteration Acts, if our new sanitary boards do their duty, the poor can be protected. Where the adulterants in bread are not positively dangerous, the object of the adulterator is nevertheless the same, the object being to defraud. Rice flour absorbs a large quantity of water, and carbonate of soda, though it improves the colour of the bread, also enables it to absorb more water. The consumer is in both cases cheated out of a quantity of nutritious flour, and presented with water, perhaps originally very foul, in its place.

The wealthy and well-to-do, not being so much dependent on baker's bread as the poor, and moreover being able to procure meats of different nourishing kinds, they can suffer little from the use of adulterated bread. The large quantities of animal and other good food they consume sustains against the effects of being ill-fed, ill-housed, and ill-clad. It is therefore important that the working poor who are so much dependent on their "daily bread" that this food should be pure. It cannot be nourishing, we have seen, if it contains the adulterants we have mentioned.

Some years ago one or more of our Dublin Lord Mayors distinguished themselves by seizing the light bread and the bad bread in bakers' and provision shops in Dublin. This public and moral duty of the Chief Magistrate has been long neglected; and of late years when any scrutiny took place, it was of the slightest and most make-believe kind. Many Dublin bakers made large fortunes in our memory, and retired with a wealth not honestly obtained. It does not occur to our mind just now that any of the number distinguished themselves by founding almshouses for the poor members of their own trade, or in grants or bequests to charitable hospitals. We have had dishonest bakers of all creeds who died in the belief and hope of a better world that they did not deserve for cheating the poor through a long life. In early days we read that dishonest bakers were dragged through this city at the horses' tails; and indeed it would not be too severe punishment if they were both fined and imprisoned at the present day, and made to stand in a public pillory. The man that deprives his fellow-man (and that man a poor one) of the staff of life deserves little consideration from the law, or at the hands of his fellow-man.

## THE O'CONNELL COMMITTEE.

At a meeting of this committee, held last week at the Mansion House, the Lord Mayor presiding, the chairman said that some weeks ago the committee came to the conclusion that no more meetings should be held until some definite communication had been received from the late Mr. Foley's representatives. He announced that on that morning he had received a letter from Mr. Thomas Brock, who had been appointed under Mr. Foley's will to complete the statue, to the effect that all the difficulties in the way of taking out administration of the will had been removed. A letter was also received from Mr. Teniswood, stating he was about communicating with the secretary of the committee on the subject. After some discussion the centenary question was considered. The Lord Mayor suggested that a general conference should be held, followed, if it was thought fit, by a public meeting, at which all arrangements as to the centenary celebration could be made. Rev. John O'Hanlon said that an eminent artist was anxious to take photographs of the monument in order to have a medal struck which should properly commemorate the centenary. After some further discussion the consideration of the matters discussed was postponed till the next meeting.

"Procrastination is the thief of time," and there is no guarantee afforded as yet that the fifth of August will witness anything better than a sham commemoration. We have grave doubts, indeed, about the completion of the monument by that time.

NEW DOMINICAN CHURCH,  
NEWRY.

The site of the new church rises very precipitously from the road, and had to be excavated to an average depth of some fifteen feet before the trenches for foundations were opened. The internal dimensions are 180ft. by 60ft., and the height to the ridge about 60ft. The material for the walling is the local granite, with dressings of Dungannon stone. The nave arches and the internal strings and hood-moulds are in Bath stone. The nave columns have caps of Dungannon stone, shafts of red polished granite, and bases of Sicilian marble. The building is now roofed, and will be entirely completed this year. The works have been carried on without a builder, by Mr. M'Shane as foreman. The cost of the church will be about £8,000. We give an illustration in present number.

## "ST. PATRICK AT TARA."

The oratorio of St. Patrick at Tara, the performance of which proved so decided a success on the 16th March last, has again been put into rehearsal, under the immediate supervision of its composer, Professor Glover, with a view to its reproduction on the 16th of next month. In reminding our metropolitan readers of this fact, we cannot do so without urging upon them the forcible claims made on public favour by this last and most meritorious composition of our talented fellow-townsmen.

We may add, that with the view of investing the rehearsal with all requisite interest, and rendering the performance of the oratorio complete in every detail, Professor Glover has introduced, from the Crystal Palace, the services of an instrument known in musical circles as the "Orchestrion," which possesses the various attributes of organ and full orchestra combined.

The oratorio will be held in the large concert hall of the Exhibition Palace on the above-mentioned date, and we trust that the patronage given to this work, which is so thoroughly "racy of the soil," will have the effect of encouraging Professor Glover to institute it as an annual treat for the musical public of Dublin.

## CIVIC LYRICS.—No. LXXIX.

## THE SEALED ORDER.

(A Municipal Nursery Rhyme.)

A T.C. would his motions move,  
Helgho! says Hurley,  
Which often his Council did approve,  
With a hurly-burly, porridge and nettles,  
Helgho! says Oliver Hurley.

In spouting one day, while the Council snored,  
Helgho! says Hurley,  
A Sealed Order came from the Central Board,  
With a hurly-burly, &c.

Alderman Bounce from his sleep awoke,  
Helgho! says Hurley,  
And his two next fellows he gave a poke,  
With a hurly-burly, &c.

The seal was broken by the Town Clerk,  
Helgho! says Hurley;  
He coughed, and gave his stiff neck a jerk,  
With a hurly-burly, &c.

The Chairman leaned full back in his chair,  
Helgho! says Hurley,  
Till you'd hardly think that his head was there,  
With a hurly-burly, &c.

Alderman Bounce stood up on his legs,  
Helgho! says Hurley,  
Ready to pump his wrath to the dregs,  
With a hurly-burly, &c.

The Chairman by this time sat upright,  
Helgho! says Hurley;  
'Twas easy to see he had second sight,  
With a hurly-burly, &c.

The Order was soon read out aloud,  
Helgho! says Hurley,  
And the T.C. never looked quite cowed,  
With a hurly-burly, &c.

The "Order" said—"Sir, as you haven't thought fit,"  
Helgho! says Hurley,  
"To do as we bid, we command you forthwith,"  
With a hurly-burly, &c.

"Well, gentlemen," said the prudent Chair,  
Helgho! says Hurley,  
"Let us consider and then declare,"  
With a hurly-burly, &c.

"Let us consider on what?" says Trench,  
Helgho! says Hurley,  
"We cannot deny 'bout the Lifey's stench,"  
With a hurly-burly, &c.

"I'm hanged if I listen to any more bosh,"  
Helgho! says Hurley;  
"The sun might stand still if we had a Josh,"  
With a hurly-burly, &c.

"As sure as my name is blunt Jack Trench,"  
Helgho! says Hurley,  
"You'll all appear in the Court of Queen's Bench,"  
With a hurly-burly, &c.

A storm soon raised, and some members yelled,  
Helgho! says Hurley,  
And motions were made and motions withheld,  
With a hurly-burly, &c.

And then there were taunts, and claps, and raps,  
Helgho! says Hurley,  
And next a "count out," and a great collapse,  
With a hurly-burly, &c.

The "Sealed Order" is still to the good,  
Helgho! says Hurley,  
And is being carried out without loss of blood,  
With a hurly-burly, porridge and nettles,  
Helgho! says Oliver Hurley.

CIVIC.

## QUERIES.

## WANTED TO KNOW.

I want to know, when Irish writers and "professionals" are dubbed with the coveted distinction of "M.R.I.A." or "R.H.A.," why they so soon belie their titles, and bestow the result of their spare time to the "Transactions" of foreign bodies, and run counter to the opinion expressed by the great Lord Charlemont, that "Ireland should be served in Ireland"?

I want to know why some quarterly, monthly, and weekly journals, published in the name of Ireland, are printed on foreign paper, set up by printers outside this country, illustrated by foreign artists, written almost exclusively for by foreign writers, and machined in London or Glasgow? And I further want to know is this what is meant by encouraging native talent?

I want to know what constitutes an Irish architectural association, and if the president and members of such are mere ciphers; and if one individual thereof can do as he pleases, to the injury of the rest, and to the discredit of architectural taste, advocacy, opinion, and progress in Ireland?

I want to know do Irish manufactured organs and pianos sound sweeter by being shipped across the Channel and then re-shipped back again with a London mint-mark upon them; and if it is on the same principle that members of our professional bodies permit their papers, previous to being read, to be sent to Manchester or elsewhere to be printed before they are published in their own country?

I want to know is it in accordance with architectural spirit, taste, and principle that members of our Irish architectural bodies act as builders and contractors as well as architects; and if the giving of certificates to speculating builders to draw two-thirds of their money before their contracts are quarter finished, is a creditable proceeding; and further, if it is doing justice to their clients to permit them to employ speculating builders who are known to carry on their work by means of weekly advances from loan offices and friendly society funds?

I want to know how many apprentices or articulated pupils are Dublin architects in the habit of taking under their wings; and if one in twenty of the young lads who go into Dublin offices ever become architects, and if one in every dozen of their masters know how to teach them their profession?

I want to know if it is not a crying scandal and a deep disgrace for architectural bodies that are supposed to represent the profession in this city to allow parents and guardians to be imposed upon to the paying of large premiums to incompetent architects with the mere semblance of a business, and with the general result, when three or more years of the unlucky pupil's time is served, his master is found to be nowhere or a man of straw, and the pupil is obliged to enter the Army or Navy if his relations are not influential enough otherwise to procure him an appointment in the Customs or in some other branch of the Civil Service?

I want to know if some honest architect or other member of our learned bodies will answer the above queries for the benefit of the common-weal; if not, I will endeavour to answer them myself on an early occasion.

JOHN BROWN,  
(Late of the firm of Brown, Jones,  
and Robinson.)

## CORRESPONDENCE.

## DRAINAGE AND RECLAMATION.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—My attention has been drawn to Mr. Rintoul's letter and the notice in your journal on the subject of the Drainage of Towns and the Reclamation of Foreshores; and having been for years much mixed up with these questions, I venture to trouble you with some suggestions.

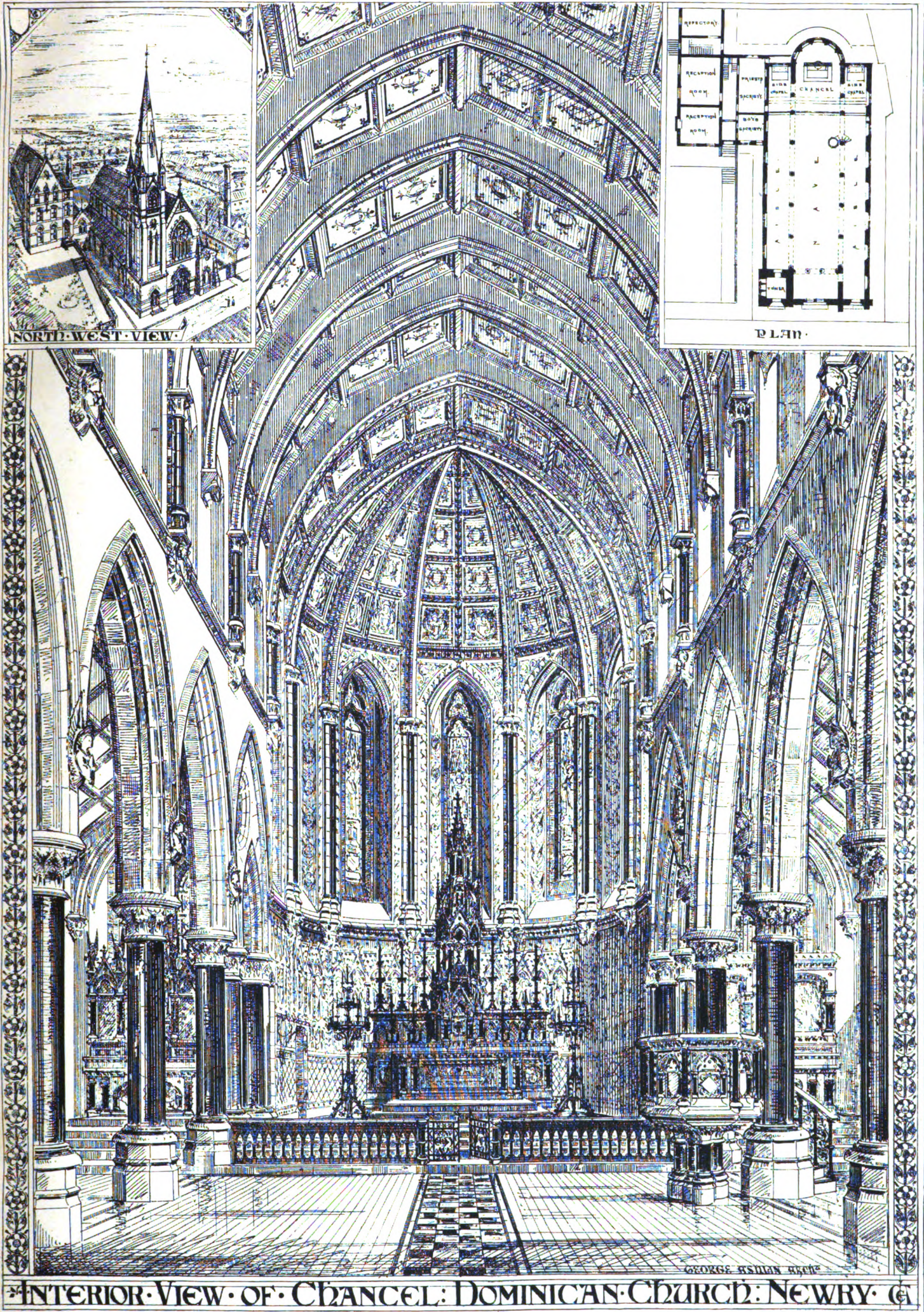
The subject of Mr. Rintoul's letter divides itself into three heads—

- 1st. What is the best system of drainage for a town?
- 2nd. What is the best system of treatment of that drainage at the outlet?
- 3rd. The importance of reclaiming the foreshores.

I should be inclined to add to these three, the necessity of considering at the same time the propriety of constructing a thorough system of arterial drainage on every river.

1st. What is the best system of drainage for a town?—The subject is one which has grown from the rudest beginnings to the present complicated arrangements, and at every step of the process there have been found plenty of old engineers who have always held that what had always been done had been right in





INTERIOR VIEW OF CHANCEL DOMINICAN CHURCH NEWRY

Fun Brothers & Co. Photo Lithographers Dublin







all details. At first the natural streams of the country were covered over and converted into rivers; then sewers were made of a size corresponding to these streams; then smaller sewers were made, with overflows for excessive rainfall; and at this last point the question remained for years, and to this day the system is in high favour with the engineers who have been most largely employed hitherto on drainage works. The evils arising, however, from all these systems became too notorious, and a great agitation sprung up in the Thames Valley as to whether this last-mentioned system or any of the older systems were right. Books and pamphlets were published, and meetings held in the principal towns; and at last, on an appeal to the Home Secretary, a colonel of the Royal Engineers was appointed to investigate the subject, and after much consideration he gave it as his opinion, and the Home Secretary authorised it to be published, that a separate system of drainage for the rain water apart from that for the foul drainage was the best course to adopt. The whole of the arguments will be found in Colonel Ewart's report, published in 1865 by Messrs. Harrison and Son, Pall Mall.

Eton and Windsor Castle have since been drained on this system, and it was then and has since, in several other cases, conclusively proved beyond a doubt that it is much cheaper to provide the two sets of smaller drains than the one set of larger ones. The reason is a simple one: the rain water can be got rid of at any spot, whereas the two, when conjoined, must be kept together to the end, and thus enormous expense is incurred. Since then Reading is following in the same course, and the important town of Oxford is at this moment being drained entirely on the double system of drainage.

As to the sanitary effects—Eton has now been drained on this system for four years, and in October last the editor of the *Lancet* sent down a special commissioner, who published in his paper of that month an authoritative statement that, since the drainage works were finished, there had been a total absence of fever in the town, or of any disease of a similar class.

Let Dublin take warning by London, which has been drained on the single system of putting rainfall and sewage all into one drain. Three millions of money have been spent in this work; but everyone knows that, large as this is, an equally large sum will have to be spent in taking the drainage out again. For the evil has only been removed a little lower down the river than it used to be, and concentrated at one point, and silting up of the river, filth and other evils are fast arising, while the immense quantity of rain mixed with the sewage makes it practically impossible to pump it for distribution on the land, and practically worthless if it could be pumped, because it never must be forgotten that this enormous dilution comes just at the time when the land is saturated and can least bear any additional burden of the kind.

So sure as the foul drainage is put anywhere else than upon the land, so certain do troubles arise; and as nature has pointed at the earth to be the great purifier and utiliser of all such products, no other system will in the long run meet all the requirements.

Only let the Dublin people move for a committee of enquiry into all these subjects in Parliament, before they embark upon any scheme under the guidance of the old engineers, however high they may hitherto have stood, and insist upon the question being probed to the bottom, and they will find evidence that will induce them to pause before committing themselves inevitably to the old system.

2nd. As to the system of treatment at the outlet.—Nothing except irrigation has yet, to all appearance, met all the requirements of the case; and I believe to that they must all eventually come. The difficulties of procuring land are great, however, and the expense of pumping also great. These are local considerations, and must be studied in

each special case. It is obvious that, if a portable manure is ever to be made out of town sewage by any chemical process, the less water and the less sand and road grit with it the better; all the deodorisation companies tell us that, and many of them now make it an express stipulation that it shall be so; and any corporation who is in treaty with companies of that kind will find out at once what very different offers they will receive if they propose to keep the rainfall out of the sewage. And this is surely an integral part of the expense of the process, as much as the construction of the drainage itself, as it is obvious that the terms any company can offer must all tell back upon the rates on the town.

I must repeat I have little or no faith in any of them, but in places where land cannot be obtained I should give them a fair trial, and place them under the most favourable circumstances for success by giving them the state of matters they all so much desire.

3rd. *The reclamation of foreshores* is intimately connected with the subject. As Mr. Rintoul has pointed out, most of our great towns are on the sides of rivers near their mouths, and thus a double benefit would be conferred by enclosing these lands, and pouring the foul drainage upon them. The solution of the great London difficulty, everyone believes, lies in this direction, and Glasgow and Dublin must follow. It would surely be wiser to see to the end of the process before beginning, than to begin and then find that when the foul drainage of any place was carried to one outlet the work was not half done.

The arterial drainage of rivers should proceed in the same manner. I could name many towns at this moment which could utilise their drainage by gravitation with great benefit, if the floods were only cared by a proper system of river treatment. Here, again, let those who are interested in the Liffey and similar cases come and see the magnificent works lately executed on the Thames for the accomplishment of these objects. No river has had so much care and thought bestowed upon it, or is responding more successfully to the treatment applied.

TRANSPORTANUS.

30th January, 1875.

[We commend this letter to the attention of our Corporation and the township boards round our bay, as well as to the Citizens' Committee who have taken up the Main Drainage question.—ED. I. B.]

## THE CORPORATION AND THE STREETS.

GERRARD v. THE CORPORATION.

On Tuesday last, at the Northern Divisional Court, Mr. White, on behalf of Mr. Gerrard, of Inns-quay, against whom the police had issued a summons for not keeping the footway round his premises properly swept, said that he had taken the advice of counsel on the matter, and they were of opinion that two courses were open to the defendant in proceeding against the Corporation for not keeping the channel clean, thereby rendering it impossible for him to keep the footway swept. One course was by summoning the Corporation to the Police-court, to show cause why informations should not be filed against them for creating a nuisance; and the other, by obtaining a writ of *mandamus* against them in the Queen's Bench. After consultation, he (Mr. White) had been advised to ask for the summons. Mr. O'Donnell said he did not wish to take on himself the jurisdiction of the Queen's Bench. Mr. White said he would be able to prove that his worship had jurisdiction in the matter. Mr. O'Donnell thought the case was very plain. When a footway was dirty, it was the duty of the public to have it swept. Mr. White—But there was mud in heaps along the sides of Mr. Gerrard's footway, and every passing vehicle splashed mud all over it, so that it was impossible for him to keep

it properly swept, and, therefore, the Corporation were the primary cause of the nuisance. Mr. O'Donnell—I never knew a case of the kind to occur before in all my experience. I do not see how you could summon the Corporation in their corporate capacity here. I will not give you the summons unless I am advised to give it. Mr. White—Nor would I on my own responsibility ask for it. Mr. O'Donnell—I think the better course would be for me to impose a fine, and then you can go to the Queen's Bench if you like. I have enough to do without entering into a conflict with the Corporation, or having the jurisdiction of the Court of Queen's Bench transferred to this court. I will not on my own responsibility grant it. Mr. White—It is not without a great deal of consideration that I apply.

Later in the day Mr. C. J. O'Donell entered the court, and Mr. White renewed his application in presence of both magistrates. Mr. O'Donnell said he was still of opinion that the more satisfactory and the cheaper course would be that he should impose a fine on Mr. Gerrard, and then let him go to the Queen's Bench. Mr. O'Donell said he would have no hesitation in giving a summons upon the opinion of counsel that an indictment would lie. It was not deciding the question, and could do no harm. Mr. O'Donnell—Well, I will impose a fine of 5s. Mr. White—I now ask you to give me the summons against the Corporation. Mr. C. J. O'Donell—That is fair and reasonable. Mr. J. W. O'Donnell—It is fair and reasonable, but contrary to all precedent. The summons was then granted.

What is sauce for the goose is sauce for the gander. The Corporation have not been slow to exercise their right of prosecuting the shopkeepers for not cleaning the footway in front of their houses, while they have themselves continually neglected to cleanse the streets. It is time that the ratepayers should exercise their rights and compel the civic body to perform their neglected duties.

In commenting upon the the above case, the *Daily Express* remarks:—"One of the magistrates was unwilling to grant a summons, apprehending, perhaps, considerable inconvenience from having the whole Corporation, with the Lord Mayor at its head, brought into the dock before him. It would be a novel spectacle no doubt, but not, we hope, a useless one, and the public would view it with satisfaction. If the venerable institutions of the pillory and the stocks, which the wisdom of our ancestors invented for the punishment of evil-doers, had not been abolished, we believe the citizens would rejoice to see them graced by the presence of some eminent municipal dignitaries as an example and warning. Mr. C. J. O'Donell took a more favourable view of the application, disregarding the absence of precedent; and as the summons has been granted, we shall be curious to see the civic procession to the police-office, and hope there will be no necessity to have the dark carriage of the Metropolitan Force, with the Royal letters inscribed on it, in readiness to convey the Lord Mayor and Aldermen to quarters which they would not find as agreeable as the Mansion House."

Mud, mud, mud,  
Morning, noon, and night;  
Mud, mud, mud,  
From Sunday till Saturday night.  
'Tis killing to be Lord Mayor,  
And be brought before the "beak,"  
And to hear the rabble's prayer—  
"He was made to eat his leak."

AN ANCIENT MANUSCRIPT.—Mr. Jas. Finch, of Lurgan, has recently obtained possession of a very curious ancient document, from the fact that it bears date "May 19th, 1700," and at the same time has an autograph signature of William III. The document, though of such an age, is in a wonderful state of preservation. It is almost covered with writing, but part of the MS. is quite illegible, while the remainder can be easily enough deciphered, but it is all written in Dutch. At the end of the writing the date is "January, 1695," after which comes the signature, "William R.," which is written in a clear and legible hand.

## SPECIFICATIONS.\*

THE profession of an architect can boast a variety in its labours—there are, perhaps, few callings in life in which more scope is given to an imaginative or artistic mind; at the same time there are few which have to contend with greater realities. It is with one of the latter I have to do this evening; and in the few observations I am about to make to you—scarcely, indeed, deserving the so-called name of “Paper,”—I shall merely give you my poor ideas on the subject, hoping that, from the many I see around me, and so many, if not all, of those so far more able to treat on this subject than I am, we shall afterwards hear some excellent and practical ideas, which may lead to an interesting and instructive discussion.

Generally speaking, when an architect receives instructions to prepare plans and superintend to its completion a certain building, he visits the site of the proposed structure, makes his survey, and ascertains full particulars. He then returns to his office and prepares his designs or preliminary sketches—perhaps one of the most agreeable parts of his profession; he has then an opportunity of indulging in the delightful visions of fancy, regardless, I fear, in some instances, of structural practicability, and perhaps completely ignoring that disagreeable consideration, the proposed cost of the building. When, however, all has been brought to suit his client's ideas as near as possible, the architect commences to prepare his working plans and details; these are generally a long and anxious work, as how often do matters turn out, on accurate calculation, not to be so easily carried out as appeared to be in the original design? When, however, these drawings have been partly or perhaps altogether finished, the architect then takes up what forms the subject for our consideration this evening—namely, the “specification.”

Now, gentlemen, it is quite unnecessary that I should tell you what the meaning of the word “specification” is; the dictionaries tell us it is a “written statement of particulars”; nor am I about to tell you, or, indeed, could I do so, what the correct form of a specification in the sense we are at present considering it should be; but let us for a moment try and define the word as referring to an architect's specification. Does it not mean that it is a document written out by the architect of a building to accompany his drawings, giving full particulars of the structure, so that another may by it be put fully in possession of his (the architect's) ideas? To draw out such a document, it is obvious that the writer must be fully conversant with the building in question in every particular, so that, firstly, to write a good specification the architect must have a perfectly practical knowledge of his profession; it amounts to almost as much as that he could actually do the work specified with his own hands. This is, perhaps, what makes the writing of specifications one of the most, if not the most, difficult branches of our profession. An architect's working drawings and details may often appear simple and easy of execution; but when we come to look at their various points with the “mind's eye,” and as if picture the work actually carried out, as we should do when writing specifications, how many difficulties often turn up, and how many points requiring special reference in our specification? And surely if we are unable to mention clearly in writing all particulars and peculiarities of the work, how can we expect to have our building properly carried out, contractors to send in tenders on equal terms, or that at the conclusion of the work we do not find ourselves hurled into that most unpleasant, tedious, and doubtful of all things, a building law-suit? I have often thought how a practical builder must smile to himself at some of the absurd specifications he is handed to tender on or execute work from, and all the trouble he is put to by such faulty and incorrect documents—in fact he has, when making out his

quantities for tender, or a building surveyor acting for him, virtually to write out a specification for himself, and so it is no wonder, as men's minds are so different on the various points in the work, that we see lists of tenders for the same building sent in shewing such absurd disparity of amounts.

To write out a document fulfilling all requirements, and going into every particular, and describing fully and accurately each different part of the work, must naturally cause such a composition to be a very lengthened one; but therein lies one of the greatest arts, I think, in writing a specification—that is, to draw the line of demarcation between having your documents running to almost an absurd length, or, on the other hand, not to fall into a much greater fault, namely, being too brief and concise. A very lengthened specification is, perhaps, the easier to write. It is simple to go into and describe fully the different portions of the work; mentioning, perhaps, the number of screws to be in the ordinary butt hinges, or the diameter and the exact position with respect to the riser of the open of the w.c. seats. Well, going into all this detail may be very well—we should all be able to do so. But are those very long specifications read by the contractors, or their foremen in charge of the building? I fear very often they are not; indeed it seems strange how little some builders read or study their specifications. How often at a building the architect may ask, Have you your copy of the specification? and it is produced to him rolled up, perhaps, in the smallest possible diameter, and apparently having been very little studied. This is doubtless much owing to the document being so long; but I think it is also frequently owing to the bad manner and rotation in which the various branches of the works are described, and the great difficulty any one except those conversant with the style of document finds in discovering the paragraph having reference to what he requires. Now instead of such a lengthened epistle, if one had a specification written out in proper rotation, clear, concise, and easily understood, would it not be much better attended to? But therein lies, as I said before, the difficulty; that is, to have your specifications entering into every particular, but not at the same time running to too great a length, and avoiding the needless repetition of words so generally used.

But I am now coming to a very important point in writing a specification, and one to which I have alluded as causing specifications not to be read, and that is the rotation of the various paragraphs. It was formerly and is now much the custom to divide specifications into different trades; that is, to have paragraphs headed “excavator,” “mason,” “carpenter,” “slater,” “plumber,” and so forth. I must say I think that such is a bad and inconvenient arrangement, and was resorted to formerly when separate contracts were taken for different branches of the work; and for such purpose it is also perfectly applicable still; but at the present day, when it is so general to have one contractor to carry out the entire work, surely it is better to have a specification in a form more quickly and easily consulted, and not give the trouble and confusion of referring to several of the paragraphs respecting some one single portion of the work. Take for instance lead gutters, the boarding mentioned of course with the “carpentry,” the lead with the “plumbing,” and a down-pipe perhaps, in immediate conjunction, with the ironwork. But this is all very plain in comparison to documents of a kind I have seen,—wrought stone mixed up with perhaps the timber work of the staircase, or the footing courses following a description of the chimney caps. A builder must indeed be imbued with a great deal of patience to wade carefully through and understand such a document as I have just described. In my humble idea of what a specification ought to be, the person reading it should as far as possible be brought through the description of the work in the same rotation as the work would actually be executed,—that is, commencing with “pre-

paration” and “excavation,” and ending with “painting,”—that is, assuming it to be an every-day work, and left out of hand complete by one contractor. But previously to any of those paragraphs, we commence almost every specification after the heading with the “observations” or “general conditions,” and they form an important part of the document, although, generally speaking, they are a copy of a general form. By reading these “observations” over, a person should be put into possession of the nature of the work; that is, that it consists in the erection of such-and-such a building according to plans, details, and specification, and to be executed according to a certain form of contract, the heads of which should be mentioned; but of these general conditions you are all fully conversant; and I do not think they differ as much with different architects as the after-part of the specification. In work situated in remote districts it is well to commence by saying that so-and-so is situated at such-and-such a distance from such a town or towns. It affords information to builders and saves inquiries. In the “observations” should also be clearly set forth what materials may, perhaps, be provided by the proprietor; and also if any portion or portions of the work are not to be included in the contract. It should also be mentioned who is to pay for drawing out of agreement and arrangement of fire insurance; and it is also well to state that the price of all articles thereafter mentioned means the shop price, exclusive of carriage and setting, and the diameter of all pipes internal; it is also well to set forth that proper and legal notice be given by the contractor to owner or owners of adjoining premises, if so required; also that the contractor be answerable for damage to adjoining premises, and all due information given, and payment made by him (the contractor) for the erection of hoarding, junction of sewer-pipes, &c. Mention should also be made of the preparation of framing and flooring at an early period, and the mixing of plastering-mortar; also that sub-letting will not be allowed except by sanction of the architect. And there are also various other matters which may occur to one's mind, and require notice in the paragraph of “observations,” such as respecting the use of old materials, and many other points. And surely the information respecting them is much better introduced at this the commencement of your specification than to have the same mixed up afterwards in the various paragraphs of the document afterwards, although even then a casual reference may be made.

After the “observations” should come the paragraph of “preparation”; this should mention what is required to prepare the site for your intended building, whether removal of old buildings or otherwise; also in this should be set forth the erection of boardings, propping of adjoining premises, if necessary, also scaffolding and other matters. You then come to “excavation,” and undoubtedly it is not better, by your drawings and by reference in specification, to give the builder some decided data by figures of the sinking and filling, &c., he has to calculate on, than use the expression regarding excavation for walls “until a firm footing is obtained”? Such appears to me very vague, and of course any more or less than indicated with this, as with all other matters through the work, has been mentioned in the “observations” when describing the nature of the contract, to be left to that judge of appeal, the architect. This giving something to calculate from is also necessary in your next paragraph as to the “well,” if such is to be,—decidedly give a certain depth, so many feet in clay or gravel, and so many feet in rock (an approximate idea may be easily ascertained, be the same more or less afterwards.) This is surely better than saying “until an ample, full, and sufficient supply be obtained;” this latter, we all know, much depends on the season of the year at which the sinking has been made. We then come to “sewers,” where mention the number of lineal feet when laid, and particulars of junctions, in-

\* By Mr. R. S. Swan. Read at meeting of Architectural Association of Ireland.

oline, outfall, &c.; also here describe cess-pools, if such have to be resorted to. After this we come to paragraph "masonry," where mention the quarry or quarries from which the stone is to be procured, and the manner in which it is to be laid; this is generally in somewhat the same language in most specifications: you know it well respecting quarry beds, bond stones, &c. Describe first the foundations and dwarf walls, afterwards go into particulars of net walls or superstructure. After this comes "brickwork:" of course mention from where it is to come, of the various kinds required, and afterwards mention the various parts of your building which are to be of this material, taking each afterwards in a separate paragraph, such as jambs and arches one, brick lining to walls another, and so forth. Fine linings come in well in "brickwork." "Wrought stone" comes next: you again mention the locality from which such-and-such is to be procured; and this reminds me of a point which contractors often have reason to grumble at,—that is, being obliged by specification to go to a certain quarry. If such comes to the ears of the owners of the said quarry, they often demand exorbitant terms, so it is frequently well to say from such-and-such a quarry, or other of equal quality,—that is, if sanctioned by the architect. Wrought stone is frequently a long item in a specification; at the same time, it is a part of your work generally, or that ought to be given in detail to the usual  $\frac{1}{2}$ -in. scale, along with the original working drawings. This, of course, shortens your written description much. As I am by no means an advocate for going over again in the writing the various matters fully figured and delineated in the details; if anything, I think this repetition, so to say, has the effect of confusing. Of course there are many matters not originally detailed, and for many of these you will find a sketch in the margin of the specification of greater service in making your ideas understood than a prolonged written account; and these latter can be adopted with advantage in nearly every paragraph of a specification: they reduce the voluminous nature of the document, and are, with a short description, much more explicit and easier understood than a prolonged written account. After the item "wrought stone," that of "mortar" comes in well, the nature of which you describe, and afterwards you take up the item "wall timber," consisting of beams, studs, blocks, lintels, &c. After this, "ground floors" come in well, describing what tiling, flagging, paving, &c., is to be included in the work or contract, as the case may be, and to follow this the paragraph "timber floors," mentioning the material and scantling of joists, and the various peculiarities which may attend their laying, the nature of flooring, &c. You then come to "roof timber," stating the various materials and scantlings, and the many difficulties, perhaps, of the roofing of your proposed building, which cannot be easily understood by the plans and details you have already given. After this, you mention "lead and metal gutters," the describing of them in words, with which I am sure you are all familiar, no matter at what part of the specification they may be dealt with; and this brings me to a point it appears to me well to mention in specifications—that is, that a roof plan having been given, and same properly-figured, breadth of sole of gutter, &c., and the turn up and drip of lead having been mentioned, that the contractor is to satisfy himself that such a quantity of lead will be sufficient, and the architect not to be held answerable for figures (which he gives to facilitate), and which no one, until the work has been actually carried out, and all drips, steps, and other matters taken into account) can say if they will prove exactly correct. The next paragraph in your specification is "slating and tiling"; this generally does not run to any great length.

You have now, so to speak, erected the carcass of your building, and you come to the internal matters, commencing with

"stairs or staircases," as the case may be. These are generally disposed of in a short item; then you come to "doors," and to describe them accurately the paragraph generally runs to a considerable length, you have such a variety of them to treat of: you generally have external doors of various kinds, and internal ones of different descriptions, but decidedly deal with one kind, and describe that fully, before you go on to the next; so you avoid the danger of mixing them up, which I have unfortunately seen; that is, one was not sure whether the hall-door was to be ledged and hung with T-hinges, and be secured with a 6-inch bolt, or that it was to be framed and moulded, and have the usual finish and elaborate details generally specified, or that the latter referred to the ashpit-door. This dividing clearly under different heads refers also to the next paragraph, namely, "windows," and in this, as well as in doors, it is well to give the number that are to be treated, in such-and-such a manner, although at the same time it may be counted almost dangerous for the architect to go into such particulars, fearing he may make mistakes,—and decidedly doing so much increases his labour. I am altogether of opinion that hardware of all kinds comes in much better along with its respective door or window than being treated of in a separate paragraph afterwards. In windows I would also include glazing, and thus, so to speak, keep every part of the specification complete in itself as far as possible. The next subject to treat of would be "cisterns, pipes, closets, &c.": this may require a great deal of consideration and lengthened description. I would include the timber of cisterns, &c., in this paragraph, but what requires such careful attention is the specifying of various supplies of hot and cold water, from whence they are to come, and having been used, how all are to discharge into the sewers without fear of contamination of water and escape of vitiated air. There are perhaps few portions of a building more suitable for separate tenders than the internal plumbing. The next paragraph in specification is one termed "sundries," describing skirtings, shelving, and presses, &c.; bells may be well mentioned here, as also iron window-bars; but these and any iron railing may well be separately mentioned if on an extensive scale. We next come to internal plaster, going also into a description of the cornices and other details, to be followed by external plaster, giving external coating, cementing, and so forth. In this latter it is well to mention the name of the manufacturer from whom cement is to be procured, so that the architect is to be fully satisfied as to its quality. Having now proceeded so far, we next come to "chimney-pieces and grates"; it, however, frequently happens that these are not to be included in the contract. If they are to be taken into account, give an idea of what description they are to be, and the cost price, and that they are to be chosen by the architect or proprietor, as the case may be, the contractor paying for carriage, and setting and providing hearths. The final paragraph in your specification will be "painting"; this also is often omitted, and merely priming specified. An accurate description of the finish by a decorator of the various parts of building, even what can be at first done, runs to considerable length, unless treated in very concise manner. When adjoining neighbours have to be dealt with in roofing, gutters, plastering, and other matters, it is often better to give a separate paragraph, calling it "adjoining premises," than to go into the various works with the different departments of your new building.

I have now, gentlemen, very briefly indeed, and very imperfectly, sketched for you the heads of a form of specification, which, undoubtedly, in many ways fulfils its object. It may not do so in all respects, and it certainly makes a long, tedious, and voluminous document when written out; and, although the preparation, which may at first give the architect some anxious study, it surely afterwards or during the progress of the con-

tract, saves him much trouble, and perhaps an unfortunate bill of extras to deal with afterwards, consequent more or less on his not having fully provided for all parts of the work to be executed under the contract. At the same time, although fully in favour of a clear and consequently voluminous specification, I am inclined to think that, carefully-drawn out and accurately-figured details of the various portions of our buildings, given with the working drawings, accompanied by a clear and accurate description of the various materials to be used, written out in as concise a manner as possible, would answer the purpose better than again going over and repeating the same scantlings and description in writing which are clearly set forth in figured drawings. A drawn-out detail shows itself at a look, whereas a written description entails reference to perhaps several paragraphs in your specification; and I should ask, which will in execution of the work be more frequently referred to by those actually engaged in carrying out the same? Surely the detail drawing. And a specification accompanied by the full details I speak of would partake more of the form of a memorandum than the long and tedious document which it is at present, in many cases, the practice of the profession to furnish.

There are a few further points to which I would wish to draw your attention in writing specifications; that is, to use simple language, as it frequently, if not always, happens that the document is in the hands of, and most frequently read over by, a so-called uneducated man, although as a foreman he may be most competent to fulfil his duties. Firstly, to have it simple in language, and also in calligraphy, that is, written out in a clear and distinct hand. Avoid abbreviations of words and figures indistinctly written; and although there are several general scribes fully competent to copy an architect's specification, we have often seen them copied in such a manner that the reading over and correcting would take almost as much time as to make the copy originally. At the same time, I am sure I speak to many who consider this copying of specifications a most irksome and unpleasant part of the duty of an architect's assistant or apprentice. Another point I am inclined for in specifications is, to give numerous marginal references. In the offices of architects in very extensive practice, it is I believe very general for some of the staff to prepare the drawings and details, and others to write perhaps every specification that issues from the office. Such is, of course, perfectly compatible with the profession. A man may be very good at working drawings, and but an indifferent hand at description or specification; and to a very high artistic mind the writing of a specification must be most irksome work; but surely, in every-day practice, the man who originally draws out the working plans can, with much greater facility, write out the specification for the execution of the same, than the man who, so to say, has first to learn his lesson. How many ideas and matters of finish occur to the man who has worked out the drawings, which may be ignored or a different construction altogether put upon them by another writing the specification, unless they are continually at each other's elbows? Then, wherein lies the advantage of the division of labour? While over the working drawings, it is an excellent idea to keep beside you a piece of paper on which to note various particular matters requiring reference in specification; it is also a good idea to have a list of the various points to be dwelt on in specification, so that by running over same you make sure that you have not forgotten anything. This omitting something from specification is very awkward for an architect.

Specifications for similar classes of building so much resemble each other, that the temptation is very strong of having a certain form printed. Unless under peculiar circumstances, I cannot see how such a practice can answer well. No two buildings at least in different parts of the country have ever been

precisely similar in construction and materials, so that these printed forms require most careful filling up, interlining, and alteration to suit the particular building which they are to describe. At the same time, of course, there are cases of buildings being erected resembling each other in many particulars, and consequently merely requiring a small filling in, to which printed forms of specification seem very applicable. However, I imagine such cases are rare. We have a number of books giving us printed forms of specifications, and examples of those that have been given for buildings now erected. Professor Donaldson's book is of considerable value, and there are also other authors who treat very fully on this subject. There is much to be learned from all these, but, I am inclined to think, more as to obtaining a good style and manner of writing a specification than of gaining much practical knowledge. Unless a person has the latter himself, this coggling from books or from written documents of others will never produce a good specification.

Of course it is not in my province to touch upon engineers' specifications; such are frequently shorter in proportion to the amount of money value of work to be executed than the similar document of an architect. Nor can I enlarge much on the form of a specification for a very extensive building, such as Sir C. Wren's specification for the rebuilding of St. Paul's, or Sir C. Barry's for the Parliament Houses. My foregoing observations have more particular reference to our own every-day work, although of course I hope that some of us may be one day called upon to prepare a specification for some work equally stupendous as the two I have mentioned, although I fear, if one was to go into the accurate descriptions I have been drawing your attention to, the specification for such would be of such a lengthened character that it would require to be bound in volumes, and that to convey the entire through the building for reference would require considerable physical strength. No matter, however, what may be the extent of the work for which we are specifying, our care and attention should be the same; and by so doing we merely require practice to enable us to write out a composition deserving in every way the name of an Architect's Specification.

#### IMPROVEMENT OF THE DWELLINGS OF THE WORKING CLASSES.

We are glad to see that, by the bill introduced by Mr. Cross, the Home Secretary, there is every hope that the working classes of the sister kingdom will be afforded protection in future in case of any public improvement or railway project displacing their dwellings, and that it will be incumbent on the promoters of public works to provide sites and houses near to those which they have removed. We trust that the measure will be extended to Ireland and Scotland, where a similar necessity exists. We append a summary of Mr. Cross's speech on the introduction of the bill:—

Mr. Cross, in moving for leave to bring in a bill for facilitating the improvement of the dwellings of the working classes in large towns, said last session the Government gave an earnest of their interest in the question by interfering with the action of one of the great railway companies of the metropolis; and secondly, by proposing to the House a standing order for the purpose of taking precautions in the case of bills which might from time to time be brought forward. The matter had for a long time engaged his attention and that of the Government, and two important memorials had been presented to the Government on the subject—one from the Charity Organisation Society, and the other from the College of Physicians. Various attempts had been made to improve the dwellings of the labouring classes. Much had been done, both by legislation and by private individuals, foremost among the latter being the Peabody Trustees, who had expended something like £600,000; but much yet remained to be done. The Acts that had been passed in recent years had been to a large extent

inoperative, because, while local authorities were empowered to pull down old and crowded houses, they refrained from doing so for this reason—that there was no other house accommodation for the poor people it would have been necessary to eject. The Government had to keep in mind the maxim that it was not the duty of the State to provide any class of citizens with any of the necessities of life, and among the necessities of life must of course be included good habitable houses. Neither must they offer inducements to private or public bodies to provide houses for the working classes at rents greatly below the market value of the buildings. It was only from a sanitary point of view that they were entitled to interfere, but this was surely enough. It was true of nations, as well as of individuals, that health was wealth, and it did not require any elaborate statistics to prove that many of the large towns were not in so healthy a condition as they ought to be. While the general death-rate over the country was 22½, and in London 24, it was 30 in Liverpool, 38 in Manchester, and 37 in Sunderland. This was sufficient to prove that there must be something wrong in these towns to make them so different from the rest of the country. If they pushed their inquiries further, however, they would find that it was only in particular parts of these towns that the death-rate was so high. In one small district in Manchester the death-rate amounted to 67, and in another 70, which showed that there must be a great deal of preventable disease. They found, too, that an enormous number of the deaths were those of young children belonging to the working classes. They were referred in the memorial to what had been done in Liverpool, Glasgow, and Edinburgh; and he could speak in regard to these towns from having visited them in the course of the recess, and made inquiries as to the working of the Improvement Acts which had been obtained for them. In Liverpool what they had to deal with was a district in which there were three or four rows of cottages close to each other, and all they did was to pull down the middle row, which was very good so far as it went. The Edinburgh people had gone more vigorously to work, and had not only opened up large thoroughfares in crowded districts, but had arranged with private individuals for the building of improved houses. The Glasgow people, while proceeding on a similar plan, were wiser in their generation, for they not only bought up old properties, but, seeing that good properties in the same district would be increased in value by any improvements that were carried out, they bought them up too, and the result would be that improvements to the extent of two millions would be made at a cost to the ratepayers of some £300,000. As to where the persons expelled were driven to in Glasgow, that had been narrowly watched, and it was found that in general they had to pay higher rents, and got a better class of houses. In regard to the Act he had now to introduce, the Government thought that for the present its operations should be confined to the metropolis and the large towns, as in small towns the evil could be more easily remedied. They proposed to throw the duty of carrying out the provisions of the Act in the city of London on the city authorities; in the rest of the metropolis, on the Metropolitan Board of Works; and in large towns, on the town councils. These bodies should have power to proceed on sanitary grounds only, which sanitary reasons should be first declared to exist by the district medical officer. When the medical officer made a report of that kind, the local authority—if, on consideration, they felt it to be correct—should prepare an improvement scheme, accompanied by maps, particulars, and estimates, and a schedule of such lands or places as were to be taken by compulsory powers, together with provision for the accommodation, in the neighbourhood where they earn their living, of such working people as might be compelled to leave their old habitations. This latter object might be easily accomplished, even in the same space, by more scientific modes of building, and properly economising the air. In regard to compulsory powers for taking land, to save the authorities the expense of getting a special Act of Parliament for each case, the Secretary of State and the President of the Local Government Board would be empowered to obtain provisional orders for the purpose in cases where, after due local inquiry, they should be satisfied of their necessity. This Act was intended to give local authorities the necessary powers for making improvements, rather than to interfere in any way with their free action; and in regard to compensation for lands, &c., taken by compulsion, it was proposed that only a fair market value should be paid, without that addition of from 10 to 20 per cent. which valuers had been accustomed to give in railway and similar cases. As to providing accommodation for working people who might be turned out of their habitations, the local authority should obtain land, on which he believed there would generally be

private capitalists ready to build on the requisite conditions; but in case of any failure in that respect, power would be given to the local authority to borrow money for the purpose from the Public Works Loan Commissioners. In conclusion, the hon. member said this was not a sensational or magnificent Act. It was intended to remedy evils which had grown up through generations, and its working would be slow and silent. Ratepayers might first look upon it simply as another source of expenditure, but in the end they would be amply recouped. He asked the House to accept this measure as a means of raising and improving an almost degraded class, who would otherwise perpetuate sickness and disease, and to carry one ray of hope into the haunts of misery and death, into the courts and alleys where there was a darkness which was not only seen but felt in mind, body, and soul.

In the discussion that followed, Mr. Kay Shuttleworth hoped that, if the action of the local authorities was to depend so much on the medical officers, the latter would be placed in a more independent position; and Sir Sydney Waterlow, who has exerted himself much in the matter of industrial dwellings in London, pointed out that there must be some external power beyond the medical officers to stimulate unwilling authorities. There were suggestions also made by other speakers, Mr. Waddy suggesting that every separate family should have means for cleanliness and decency, for without such means he thought the bill would be singularly incomplete. It is probable that the bill will be further amended in committee, and it is not too late to move that it should be extended to this country.

#### THE STATE OF THE STREETS.

The dirty state of the streets of Dublin is a chronic subject and an evil which we have dilated upon hundreds of times. Mr. Alfred MacDermott, of Fitzwilliam-square, thus writes upon the matter, but as far as the Corporation of Dublin is concerned, his and similar complaints are likely to be met with the deaf ear:—"The mud and refuse often flung off passing carts have not been removed from Fitzwilliam-square for weeks past. It is occasionally swept from one side of the street to the other, and left there, the next passing cart to a great extent reversing the process. My children are sometimes unable to reach the gate of the square without being covered to the ankles in mud, accumulated by the Corporation before the gate. The amount of taxes collected by the Corporation from the sixty-nine houses round the square amounts to over £3,000 a-year, for which we do not even get the square cleaned. Look at page 1418 of 'Thom's Directory' and you will see the formidable array of city officers kept by the Corporation, and paid for by the citizens—City Engineer, City Architect, Secretary of Drainage Committee, Assistant Secretary of do., Mace Bearer, Officer of Commons (whatever that means), and so forth, to the end of the page; but Thom does not state which (if any) of these officers is responsible for seeing to the removal of filth from the streets. The citizens have the remedy in their own hands if they would only bestir themselves. Let them in the first instance insist on the discharge of present incapable officers, and the appointment of competent men in their places—men who will not think that by long tenure they have established an indefeasible right to the salary of their office without discharge of the duties supposed to be attached to it. If this be done the term 'dirty Dublin' may become a recollection of the past and not a filthy reality of the present, inseparably associated with our much-respected Corporation."

Very temperate and excellent advice for "our much-respected Corporation?" Instead, however, of reducing some of their incompetent staff, we hear there is talk of again appointing the recently-suspended Main Drainage staff to enable them to put in another long term of doing nothing. The trees in Sackville-street, too, need a keeper. Who's in for the office?



## LOANS FOR PUBLIC WORKS.

In introducing a bill for the consolidation and amendment of the Public Works Loan Acts, the Chancellor of the Exchequer assured the House that the Government had not lost sight of the important question of local taxation, though it had never been their intention, as some seemed to suppose, to introduce any large general measure for the reconstruction of local administrative bodies. They did not sympathise with the doctrine of the late Government that nothing could be done in the matter of local taxation until the whole system of local administration had been recast. To bring forward a great scheme of that kind might cause sensation and gain them credit for ingenuity, but it would hinder rather than further the object they had in view. They were conscious of the need for local reforms, and did not abandon the hope of accomplishing them; but they believed such a result would be best achieved by gradually amending the existing system and removing its defects. One important means of bringing about the object in view would be the introduction of something in the nature of an annual local budget, which would have the effect of especially calling the attention of the country to the administration of local finances, of which at present so little public notice was taken. Returns would shortly be issued which he believed would show the present amount of local indebtedness to be about £72,000,000, and that it was increasing at the rate of £3,000,000 a-year, with comparatively little control on the part of anybody. The Government wished to devise some scheme by which the attention of Parliament would be directed to local income, expenditure, and indebtedness, and, important as the subject was now, it was becoming more and more important. Estimates of the sums likely to be required in the course of the year for public works would be laid before the House at the commencement of every session, when at the same time Parliament would be asked to authorise the expenditure of the money, and be afforded information as to what had been done with the money granted in the previous year. Amendment of the Acts was required so that timely notice might be given to the Treasury of loans approved by the Commissioners, for putting an end to a system of unexhausted credit, and for consolidating, as far as possible, the different loans, for the granting of which regulations would be laid down. He might mention that under the system £70,000,000 had been advanced, and of that amount Government had received back, or had owing to them, £67,000,000, so that, contrary to an impression abroad, their operations had been far from satisfactory in a financial sense.

## HOME AND FOREIGN NOTES.

**DUBLIN TRAMWAYS COMPANY.**—The last half-yearly report of this company, ending on the 31st of December, shows that the gross receipts from all sources amount to £32,904 10s. 5d. Out of the sum of £9,362 0s. 9d. available for division, it is proposed to appropriate the sum of £8,100 to a dividend, at the rate of 7 per cent. per annum, free of income tax, being six shillings and ninepence per share, and to carry an amount of £1,269 to the reserve fund, the balance of £62 0s. 9d. being carried forward to next account. The working stock of the company on the 1st January, was 70 cars, 9 omnibuses, and 444 horses.

**ACCIDENT.**—An accident occurred on Wednesday morning at the new buildings in course of erection at Clongowes Wood College. About half-past eight, while four men were at work on a scaffolding the fastenings suddenly gave way, and they were thrown to the earth from a considerable height. Surgical assistance was soon at hand, and one of the men, named Joseph Smith, was found to have sustained injuries of a serious nature, including several scalp wounds, a compound fracture of the right leg, and a severe injury to the right hand. The others were more or less seriously injured.

**THE STATE OF THE BLACKSTAFF, BELFAST.**—A number of the leading medical men of Belfast have

signed a memorial which has been forwarded to the Local Government Board of Ireland regarding the Blackstaff and Pound rivers. The memorialists state that these streams have been for a long time foul and open sewers, and that the town council have not only failed to protect them from pollution by others, but that they themselves have actively conveyed part of the town sewage into them. It is now some years since we pointed out the foul state of the Blackstaff, and from time to time we reverted to the subject.

**CHANTREY'S BEQUEST.**—Sir Francis Grant, president of the Royal Academy, Viscount Hardinge, and Mr. Henry William Eaton, M.P., have been appointed trustees to carry out the wishes of the late Sir Francis Chantrey, who bequeathed a sum of money, amounting to about £100,000, for purchase of pictures and works of art for the nation.

**LONDON WATER.**—Dr. Frankland, reporting on the water supply of the metropolis during January, states that the Chelsea, Grand Junction, Southwark, and Lambeth Companies again furnished Thames flood water of "very bad quality," and far inferior to that delivered by the West Middlesex Company. The East London Company's water, derived partly from the Lea and partly from the Thames, as regards "dissolved organic impurity," was no better than the Thames flood water. The New River Company's water was inferior to that supplied in December, but was much superior to any river water of the other companies. The samples of the Chelsea, Southwark, and Lambeth Companies' waters were somewhat turbid from imperfect filtration, and the suspended matter in each case contained moving organisms, "whilst considerable quantities of the mycelium of a fungus were found in the Chelsea and Southwark waters." The Kent Company's water, from deep wells in the chalk, was uniformly bright and palatable.

**FOLY'S STATUE OF THE PRINCE CONSORT.**—This colossal statue for the Hyde Park Memorial—the crowning feature of the whole design, and the last remaining portion of the work—will be cast in bronze in a few days. It is to be gilt; and as this will necessitate further working in chasing and fitting, it will probably not be ready to put upon its vacant pedestal until sometime in the coming summer. The Prince Consort is represented in his robes as Knight of the Garter.

**THE SIGNAL LIGHT AT WESTMINSTER.**—The gas signal light on the clock tower of the Houses of Parliament, the patent of Mr. Wigham, of the firm of Edmundson and Co., Capel-street, is to be exhibited during the present session in the same position as previously until after Easter, when the existing lantern, which was never intended to be permanent, will be removed, and the light shown at an elevation 30 ft. higher. The lantern containing it will be protruded from the tower every night and withdrawn after the light is extinguished, so that during the day it will be invisible.

**REMARKABLE INSTANCE OF LONGEVITY.**—An old woman died within about a mile of the famous Douen Rock, parish of Termon, lately, at the advanced age of 112 years. It is generally believed that the woman, whose name was Grace Deeney, was the oldest person in Ireland. She had been supported for the last thirty years by an only daughter. On Thursday, last, at the Wexford Union Workhouse, a woman named Mary Prender died, aged 111 years. It appears her faculties were perfect until she breathed her last.

The west wing of the Town Hall, Waterford, is to be converted into a theatre.

## TO CORRESPONDENTS.

**AGRICULTURAL DWELLINGS.**—A bill is introduced by Mr. Bruen "for the improvement of the dwellings of agricultural labourers in Ireland." There are other notices of motions on Irish questions, but we fear they are fated to be heard of again only at the tail of the session in the "Massacre of the Innocents."

**A MASON.**—Oulique bridges came into general use on the introduction of the railway system, but the principle of the oblique arch is as old as Euclid. See Watson Buck's treatise thereon, with explanatory plates, which may be ordered through Lockwood and Co., London. Such a volume should be found upon the shelves of the Mechanic's Institute.

**A GAS CONSUMER.**—The remedy is apparent, but it can only be accomplished by united action. The consumer of late years has been paying for little gas and a great amount of adulteration. It is not all gas that the meter registers, even when the mechanism is correct.

**SPEC.**—The illustrations in the periodical named are not new, the blocks have been used over and over again, or rather electrotypes of them.

**"GRINDING MONEY."**—The custom is not general in Dublin of allowing carpenters about being "sacked" the last working hours of their last day, to grind their tools to fit them for fresh employment. Some respectable employers, however, do grant the privilege to their workmen, and it is right they should, as none of them lose in the long run, but are benefited when employing workmen anew, to find that their bench tools are in proper working order.

**DELTA (Belfast).**—We can only say that he calls himself an architect, and his name appears in the "Directory" as such; but we know nothing about his work, though we do about his designs.

**RECEIVED.**—R. S.—J. O.—Vindex—S. and Son—A Carpenter—Gothic (not up to the mark for illustration)—J. W. B. Edinburgh.

**EPPE'S COCOA.**—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Eppe has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame"—Civil Service Gazette.

## NOTICE.

*It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.*

*Correspondents should send their names and addresses, not necessarily for publication.*

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# The Irish Builder.

VOL. XVII.—No. 363.

*The Literature of Gothic Architecture in Ireland.\**



IN the "Transactions" of the Royal Irish Academy, 1789, there is a paper by the Rev. Matthew Young, afterwards Bishop of Clonfert (previously alluded to), entitled "The Origin and Theory of the Gothic Arch." This paper has its value as a contribution to the history of Gothic Architecture in this country, not on account of its literary merits, but for the mathematical ability of the writer, who illustrates the properties of the Gothic arch. His paper is accompanied with diagrams, by which he shows the relative strength of the pointed arch as compared with circular and elliptic arches, when in a state of perfect equilibrium, and a determination of the aberration from a true balance, which is generated by the horizontal termination of the solid building erected upon it. He says the equilibration of arches may be ascertained by considering the voussoirs or arch stones as so many wedges urged by the incumbent weight, and endeavouring to split the arch. The force, therefore, of a voussoir depending on the magnitude of the vertical angle, the impelling force, and the resistance to be overcome, is, on the first account, directly as the radius of curvature of the arch at that point; on the second, as the square of the sine of the angle formed by the tangent to the curve at the given point with a vertical line; and on the third as the sine of the same angle. He proceeds to illustrate the properties and strength of one arch as compared with the other—circular-Gothic, elliptic-Gothic, or depressed or Tudor arch. In speaking of the defect of the equilibrium in the Gothic arch, he says it is less than in the semicircle; and, when the height of the building is given, the higher the arch the more it approaches a perfect balance. Hence, he concludes, the Gothic arch was well adapted to the religious buildings of the middle ages, when the roof was to be raised to an extraordinary height; but when a very high building is to be erected on a Gothic arch, the quantity of matter over the vertex must be lightened with windows or other perforations, as was usual in such buildings. He concludes, also, that an elliptic arch, whose transverse axis is perpendicular to the horizon, is to be preferred to the Gothic arch for strength, because its strength exceeds that of a Gothic arch of equal span and altitude when both are in a state of equilibration, and a given altitude of building raised upon it, and terminated by a horizontal line, produces a less aberration from a perfect balance of the parts. For the same reasons, he says the Gothic arch, when carried up to a sufficient height, is to be preferred to one semicircular.

Our countryman, the Rev. Matthew Young, appears to be in advance of his day in his analysis of the properties of the Gothic with the older forms of arches, and his paper is

worthy of study and comparison with the works of our more modern writers on the science of construction and building. The first portion of his paper, wherein he deals with the opinions respecting the origin of Gothic Architecture, need not be dilated upon. The Saxon, Norman, and Gothic styles are compared, and from the comparison it is concluded that the Saxon bears some similitude, as it were, to the Tuscan Order, the Norman to the Doric and Ionic, and the Gothic to the Corinthian and Gothic; and then he goes on to discuss the free opinions existing in his time and the origin of the pointed style. After discussing these, he comes to the conclusion that it seemed fruitless to inquire into the specific accident that gave birth to the pointed arch:—"Our speculations may be entertaining on the possible causes which gave rise to it, but we can be said to reason only when we direct our inquiries into the actual properties of the arch, which might have recommended it after the fashion of such an arch had been conceived." Hence followed the mathematical deductions of Dr. Young.

In the "Transactions" of the Royal Irish Academy of the same year, there is a paper by Mr. William Beauford, entitled "A Memoir respecting the Antiquities of the Church of Killossy, in the County Kildare, with some Conjectures on the Origin of the Ancient Irish Churches." We will give some of the views entertained by Mr. Beauford in illustration of architectural thought in the last century on our ecclesiastical architecture. Comparing the Irish with the Saxon churches, he said our ancient native churches had also crypts to their stone churches, but these, unlike the Saxon, were not under but upper, crofts situated in the roofs between the circular stone ceiling and the stone pediment roof, as in the churches of Glendalough and Cashel, agreeable to the custom of the Messerabic Christians, who still use these apartments as choirs. On this account, he said, the roofs of the Irish churches were raised remarkably high, and gave them a different appearance from those of the Saxon. The insulated tower he points out as another distinguishing feature between the Saxon and the Irish architecture, which the Anglo-Saxon did not appear to have used "any more than the Italians, at least very sparingly;" but numbers, he says, are to be found near the old Greek churches in the East, which the Moslems adopted as minarets to their temples, and watch towers to their fortresses, as appears, he states, from several remaining on the Ebro and in other parts of Spain.

Mr. Beauford says the Irish do not appear to have adopted this species of architecture, or to have built with lime and stone until [before or after] the 9th century. From the beginning of the 11th, stone-roofed cryptic churches and round towers became common in Ireland, and this style continued till the introduction of the Norman and Gothic in the beginning of the 12th century, when it was discontinued. It will be sufficient for us to say at this point that Mr. Beauford's opinions are strangely at variance with the opinions of writers on Gothic Architecture at the present day, both in Ireland and England. In the "Anthologia Hibernica," 1793, Mr. Beauford elaborated his former views in some articles entitled "History and Progress of Architecture in Ireland," from the earliest times. In these papers he treated

of the civil, military, and ecclesiastical architecture of this country. Speaking of the stone-roofed Irish churches in his article in the "Anthologia," Mr. Beauford held that they have more resemblance to the Grecian than to the Italian style, and he is inclined to think that they owe their origin to the former rather than to the latter. The irruptions, he says, of the Saracens into Greece obliged numbers of the clergy and men of letters to retire into foreign countries; several arrived in Britain and some in Ireland. "We find Dobdan, a Greek, following Virgil, an Irish bishop, to the Holy Land; and, during the eighth century, several other Greeks and Orientals resided in this island, especially on their expulsion from Rome."

Mr. Beauford's authorities for these statements are very weak ones—Ledwich's "Irish Antiquities" and Godwin's "English Bishops." By those learned foreigners alluded to, Mr. Beauford thinks there can be little doubt of the lower Grecian architecture being introduced into Ireland during the 9th and 10th centuries, which, in process of time, became general throughout this island. He points to Cormac's Chapel, Glendalough, Monaincha, the round tower of Kenith, Co. of Cork, and the Oratory at Malachy as specimens of this style, ranging from 901 to 1140. These edifices, continues Mr. Beauford, though neither so large nor elegant as those on the Continent, are evidently of the same origin, and from which period stone-roofed churches and round towers were the reigning taste in this island to the close of the middle ages, when they gave place to the Gothic. It is not necessary to follow Mr. Beauford in detail in his argument respecting our early churches or our later ones. In his opinion, the Gothic style was introduced into Britain from the Continent during the 11th and 12th centuries by the Norman clergy, and about the same period by the Danes into Ireland. His authorities for these statements are not of much account—Grose's "Antiquities," Henry's "History of Britain," and Godwin's "English Bishops." The Danes were rather the destroyers of Irish ecclesiastical structures than the builders. The building of St. Mary's Abbey, Dublin, has been ascribed by more than one Irish historian and writer to the Danes, 938. The pointed arches of this remnant of our early architecture are, as Mr. Bell remarks, rather incidental than direct ones, or, to speak in plainer language, "they may be termed blind arches, being formed by the groined springers next the side walls, which join each other at the top of the arched roof of this chapel."

Further on, in another section of his book, Mr. Bell thus describes the character of the arched work of St. Mary's Abbey:—"This vaulted chapel measures 47 ft. in length from the eastern wall to the western, and in breadth 23 ft. 8½ in. The compass roof forms a circular arch divided into four compartments by parallel arches, supported by pilasters or columns. Each of these compartments are subdivided by cross arches, the groins of which spring from shafts, and intersect each other in the centre of the ceiling. Another set of springers, supported by the same columns, form with their antagonistic springers a well-proportioned range of pointed arches against each side wall."

In reference to the opinion of Mr. Barry, the great painter, on the origin of Gothic architecture, to which Mr. Bell seems

\* See ante, p. 29.

to subscribe, and in allusion to Mary's Abbey being the work of the Danes, there is a note at the end of Mr. Bell's book to the following effect:—"The opinion of Mr. Barry in the former of these notes seems at variance with the supposition in the latter, that the northern Danes could be the depositories or inventors of the pointed arch; but the Danes and their countrymen, the Normans, when they obtained settlements in various countries, soon acquired civilisation and taste for the architecture of those places. When this change in their manners was once accomplished, their maritime and commercial habits, and moving about from place to place, afforded these people many opportunities of viewing or imitating the edifices of different countries, and no doubt occasionally improving upon them."

Whatever the Danes, as a remnant of that race, may have done when converted to Christianity or became absorbed in the native population after their final discomfiture in 1014, is not the question. It is clear, on the other hand, from our annals that while they partly ruled in this island and ravaged, they were not a building race, but a vandal and plundering one, and that Gothic Architecture in Ireland, even in its earliest stages, owes nothing to them but spoliation.

In another paper we will take note of the opinions of some other native writers in illustration of our subject, and among them of the celebrated James Gandon the architect.

#### SANITARY SERVICES AND SANITARY HONOURS.

A GOVERNMENT is at present in office pledged to the passing of sanitary measures. They have certainly, as far as we can see yet, considering the short time they are in office, shown an earnestness on behalf, and in the interest of, the working classes and the public health. The Home Secretary's (Mr. Cross) bill is a step in the right direction, though it would be a pity to see it passed in the shape in which it was brought before the house, for with some obvious emendations it could be made a most valuable measure, while without these its utility would be greatly lessened.

The Government has it in its power to become a popular one by dealing with sanitary and educational questions, and it is much in its favour that it has succeeded to power at a time when the questions of public health and sanitary administration were ripe to its hands. The pens and tongues of social and sanitary reformers for several years in the professional press and at yearly congresses have ventilated the question, and it must be a matter of satisfaction to those workers in the interest of the public health that their long and earnest advocacy is at last bearing good fruit. *Apropos* to the subject under notice, Mr. Robert Rawlinson, C.B., a distinguished Englishman, and more, has addressed a letter to the editor of the *Builder* (Mr. George Godwin), which we shall offer no apology for reproducing here:—

"Sir,—The editor of the *Builder* must look on the present movement in Parliament to legislate for house improvement with some degree of pride—I was about to write with 'satisfaction'—and I have no doubt but that you are satisfied and gratified that improved legislation should at length have come about after the years of labour you have devoted to the cause. The articles in the *Builder* first directed the attention of the late Prince Con-

sort to the subject, the model cottages of the Exhibition of 1851 having been one result. Since this date the *Builder* has not ceased, in season and out of season, to reiterate the cry of improved dwellings for the working classes as the first step in true sanitary progress. I, as a sanitarian, and a reader of the *Builder* for the last 30 years, know and appreciate your untiring labours, and I ask that you will permit me to say so in the pages of the *Builder*. A list of your separate publications (including 'A Glance at the Homes of Thousands,' 'Town Swamps and Social Bridges,' 'Another Blow for Life,' 'Overcrowding in London,' 'Address on Health' at the Leeds Congress) and your articles would make a tolerably full catalogue, and I trust some day to see your writings on the subject of house improvement in a collected form. We decorate soldiers, sailors, statesmen, and lawyers, and now and then distinguished doctors and architects. You, in my opinion, have earned distinction in the three-fold capacity of architect, editor, and author, and I, with the profession generally, will feel proud, at no distant date I hope, to salute the editor of the *Builder* with some addition to his name."

For ourselves on this side of the Channel, we can heartily endorse the utterances of Mr. Rawlinson, and would be glad to see Mr. Godwin receiving his well-earned distinction. We only wish that others as honestly as Mr. Rawlinson would boldly acknowledge the public indebtedness to Mr. Godwin. In our character of professional journalists, or as citizens apart, we have ever acted up to the principle of giving to Cæsar what belongs to Cæsar, and we could never be a party to ignoring the legitimate claims of a professional friend or enemy. There is, however, no enemy in the present case, but a man who has deserved well of all classes in all parts of her Majesty's empire. We have no hesitation in saying that it is chiefly owing to the labours of the *Builder*, now extending over a quarter of a century, that we owe the advanced state of sanitary legislation and the improvement of workmen's dwellings. Long before a London newspaper devoted a paragraph to the subject, the *Builder* was working earnestly in the interest of social and sanitary reform. Every week districts in London or in the country were visited. East or west of London the dwellings of the working poor were entered by the conductor of the *Builder* in his sanitary mission; the plague spots sketched and described; crime and pauperism were portrayed; and means for the improvement of the masses pointed out. We have ourselves traversed not a little of the highways and byways of the three kingdoms, and we can estimate the difficult and dangerous nature of the work that was undertaken and accomplished.

As a sanitary pioneer, Mr. Godwin lives as one of the first, if not the very first. Judging him by the amount of work he has done (a portion only of which has been noticed by Mr. Rawlinson) he deserves not only a mark of distinction at the hands of her Majesty's Government, but a public testimonial at the hands of the British people.

#### WASTE LAND RECLAMATION.

THE subject that we started and amply discussed is growing in importance every day. Believing in its soundness and the great benefits which must accrue to this country by the reclamation of bog, slob, tidal, and foreshore waste, we can afford to wait without a misgiving that our views can be proved fallacious. While waiting for the growth of public opinion upon the subject, we intend to

work at the same time on its behalf. It becomes us at the same time to take note of any controversy upon the subject.

Mr. Clive, M.P., who is a large proprietor in the west of Ireland, having 40,000 acres in Erris, is reported to have stated, in answer to some remarks of Mr. O'Connor Power, M.P., that it was mere fine declamation to say that the waste lands could be reclaimed by the people, and that the work required capital, time, and labour. Of course it does; but that is no disproof that the work can be done by and for the people by the aid of advances, or by other means which we have already pointed out. Mr. Clive refers to his own case, by stating that his endeavours to reclaim cost him from £15 to £20 per acre. Mr. Brett, the county surveyor of Wicklow, who is well acquainted with the counties of Mayo and Waterford, having been officially employed in both, has replied to Mr. Clive's statements. His views are similar to those he expressed in a report forwarded in 1838 to the Board of Works, supplementary to Mr. Nimmo's in 1822.

Mr. Brett is strongly of opinion that "under careful arrangement and judicious management, reclamation by the people is not only practicable, but is the only safe and economic mode by which it can be made remunerative and a source of wealth" to the community at large. Reclamation by the State, by companies, or by proprietors on a large scale, he thinks inapplicable, but that reclamation by the occupiers, under proper control, and with "reasonable assistance, can be made a source of undoubted profit to the proprietors and occupiers of the soil." Mr. Brett says that the sum paid by Mr. Clive is too high, and that the average cost should be £10 to £12, and the owners and occupiers in Mr. Clive's district had reclamations made for that sum, adding that Mr. Clive's expenditure has been limited to about 500 acres of reclaimed land and 1,000 acres of improved land.

Mr. Brett holds that "with facilities for parcelling out the lands suitable and properly circumstanced for reclamation, with sufficient tenures, and reasonable aid in the shape of advances properly secured, an extent of improvement could be effected, and a degree of prosperity to the country secured beyond what persons who are not thoroughly acquainted with the country could imagine."

In a rejoinder, Mr. Clive says that the instances of reclamation by adjoining proprietors and occupiers pointed out by Mr. Brett were upon a very small scale, and as the influence of the landlords has been taken away by the legislation of Mr. Gladstone, there is no guarantee for that proper control and management which Mr. Brett admits to be necessary. It is further inferred by Mr. Clive that before reclamation could be effectively carried out in bog lands there must be arterial drainage, and the original drains will have to be deepened from time to time as the bog subsides, and this would involve expenditure.

Considering the enormous quantity of waste lands of all kinds there is in this island, pointed out in former articles, connected with our bogs, mountains, lakes, and foreshores, the latter belonging to, or claimed by, the Crown, an earnest movement towards their reclamation would meet with popular favour, and by whatever means carried out would directly tend to the benefit of this country. Mr. Brett is of opinion that the occupiers are the proper persons to do the work, but we see no difficulty in the way of the Government assisting owners, occupiers, or public bodies in carrying out the work by adopting the usual means for the repayment of advances. The Board of Works could be empowered to materially assist in the work of general reclamation, as they would have the power in their own hands to exact proper conditions. Advances for works of inland drainage, agricultural dwellings, and other works of improvement have been punctually paid in Ireland. We



are not adverse to seeing public companies, English or Irish, formed for carrying out works of reclamation, or a Governmental arrangement by act with seaport corporations, by which the slob lands of our foreshores could be parcelled out and reclaimed, and sold in lots for further improvement by the purchasers.

### THE GAS QUESTION.

We foretold long since what might be expected from the present composition of the Gas directory of Dublin, and the wire-pullers in the Dublin Corporation. A gross monopoly exists at present, and is likely to exist, if the ratepayers and consumers do not unite and act in concert. An organisation for the embodiment of the public voice is needed, so that a public investigation may take place into all matters connected with the gas supply, and the supervision of the same. The consumer is a victim to extortion, for he is at present charged for gas which he really does not consume. Mind, we are explicit in our statements. Illuminating power is one thing, but a *bona fide* and actual supply of gas is another, and the latter the citizens are not getting. The tricks played by the gas companies in the sister kingdom have been discovered and exposed, but the Dublin company are determined to try the patience of the consumers to its extreme limits. Dividends are needed, and dividends there will be, and the upright directory will not be despoiled of their usual grant. The whole arrangements and mechanism connected with the gas supply of the city would not bear scrutiny; and if the Gas Company wills it, they have it in their power to render the supply still more unsatisfactory while satisfying the public on the score of illuminating power. We suppose our traders know what doctored articles are. They don't sell gas; if they did they would know the tricks of that trade. Let them set to learn a little about it now, as the shoe is pinching them severely, and, with a united action, the case can be settled in one of our law courts. The gas officials are as amenable to justice as offenders against the sanitary laws. We would direct the attention of our readers and gas consumers in general to the excellent letter of Mr. Kirby in our present issue.

### ART CULTURE IN DUBLIN.

THE report of the Head Master of the Dublin School of Art, and the summary of the proceedings at the annual distribution of prizes to the students, which we print elsewhere, afford cheering evidence of the progress of art in this country, but particularly in the capital. Yearly, for several years past, there is a steady onward and upward advance on the part of the Dublin School, and in the National Competition the students in this city at present occupy the foremost place.

Looking at the number of additional premiums awarded in the competition of last year as standards of merit, the awards stand thus—Dublin, 12; Edinburgh, 11; Manchester, 10; Birmingham, 9; Westminster, 8; Belfast, 6; Sheffield, 6; Glasgow, 4; Cork, 1. This is not a temporary or exceptional case, for out of the 1,514 prizes amongst the students of the three kingdoms since the establishment of the national tests in 1866, one-eighteenth of the whole have been won by Dublin students. Mr. Edwin Lyne, the Head Master, is to be complimented on this cheering result, and a meed of praise is also due to his efficient assistants.

Many of the designs of the students of the Dublin School have been utilised by manufacturing firms in the branches of poplins, damasks, lace, and carpets, and some of the young lady students are conspicuous for their talent in designing. By sound technical instruction and the application of art to manufacture in this kingdom, great benefit must ultimately accrue. There is ample room for the development of artistic design as applied

to the products of the foundry, pottery, furniture making, textile manufacture, carpet making, and ornamental fittings in house building, inclusive of chimney-pieces, grates, and external stone carving.

We hope the young artizan classes of Dublin will more fully avail themselves of the facilities within their reach. They cannot all become artists in the true sense of the term, but with a little earnest and careful study, they can all be respectable draughtsmen. Drawing is indispensable to all mechanics, and the workman that has a knowledge of drawing, particularly in the building trades or those cognate to it, is certain to become the more skilful and competent craftsman.

The Dublin School of Art has produced many successful students, even in days when not one-third of the facilities existed for instruction as now, or fitting masters could be found to impart the instruction needed. Many of these students became eminent artists in after-life as painters, architects, and sculptors, and died, like the late lamented John Henry Foley, with their fame assured. Under the present improved circumstances and management of the Dublin School, stronger hopes of success may well exist in regard to the future of Irish Art.

### SMOOTH-PLANING OF DOORS, &c., BY MACHINERY.

THE acute and inventive American mind will soon leave no mechanical art untouched by machinery. Workmen in the building and other trades are yearly having their "kits" lightened, and the number of their bench tools growing smaller and smaller, or less needed. Door-making in the United States is far more extensive, and carried out with more perfect machinery, than in the United Kingdom, and every year sees wood-working machinery more and more perfected. Doors, shutters, sashes, and other square framings have now for some years back been prepared in large shops in this and the sister kingdom by planing, tenoning, and mortising machines, the mouldings being run by machines also. It is, however, the custom still, when the framing-up or wedging takes place, to use both the trying-plane and the smoothing-plane, particularly to level the projections or "lippings" at the joints. The hand smoothing-plane has to be used on every piece of framing to produce a smooth surface before the final rubbing of it with glass-paper.

Very interesting particulars of door-making, and of the new smooth-planing machines used in the States, appears in a recent issue of the *Manufacturer and Builder*. A Mr. O. G. Howes, a large manufacturer of doors at Fort Ann, N. Y., has invented and constructed a machine called the diagonal planer, which has been in use for two years, for planing doors, blinds, shutters, wainscoting, and other framed work, without splitting off or injuring the corners or edges. The doors and blinds are planed at a cost of one cent each. For small articles it has been the custom with those having wide planers to pass them through the machine in such a way as to present the grain diagonally to the cutting knives. This method has been quite successful with small work, but Mr. Howes has improved upon this, and constructed better and larger machines. The new machine has a small circular saw attached, which trims the tenons and edges while the door is being planed. One boy of sufficient size to handle the articles attends the operation, planing (in the case of doors of the ordinary size) about fifty per hour.

Compared with hand labour, the ratio of cost of machine to hand labour is calculated at least as 1 to 10, and in the case of hard woods of 1 to 20. Where work is carried on in an extensive way, the machine, if worked to its capacity, it is stated may save thousands in a single year, and convert a losing business into a profitable one.

Mr. Howes has transferred the manufacture and sale of his new machines to Mr. Norris,

of West-street, New York City. He furnishes them on the condition of being paid wholly from the amount saved by their use; and has been induced to make this offer by reason of the present dull state of the manufacturing interest in the States. There can be little doubt, from what we have stated, that large manufacturers and users of wood-working machinery in England and Ireland will soon avail themselves of the new machinery.

### THE ARCHITECTURAL ASSOCIATION (ENGLAND).

At a late general meeting of this body, under the presidency of Mr. Birch, it was announced that two donations of five guineas had been presented to the prize fund by Mr. J. H. Goode and the President. An interesting paper was read at the meeting by Mr. R. M. Fulford, entitled "Notes on the Architecture of the Brittany Coast," which was illustrated by a magic lantern. A discussion followed, the president saying that the paper was a most interesting one, on account of the connection between the architects of Brittany and the architects of England—a connection which, he was of opinion, it would be interesting to trace further. Mr. Fulford had dwelt upon the wonderful Druidical remains that still existed in Brittany, and were to be found at Carnac; but at this place the stones found were not so large as those at Stonehenge, although the remains covered a much larger area. Mr. Phené Spiers was of opinion that any resemblance existing between the architecture of the two countries was that it had been filtered through Normandy.

### LARGE AND SMALL FARMS. SECOND ARTICLE.

THE complicated state of the world has naturally led to dependence on the assistance of others. This tended to combination of individuals for mutual support, and caused the production of articles in large quantities, and also occasioned the division of labour. In fact, every day points to the mutual connections between the inhabitants of the globe, and leads to the conclusion of the truth of the co-operative system—"Each for all and all for each,"—and shows the advantage of the command to do unto others as men should wish to be done to themselves.

The combination of individuals has greatly been developed, especially in the monster shops, by which the consumer receives the article which he may want at a lower price, with less trouble than by the small trader; and the example given by the Rochdale Pioneers has caused, and is causing, similar associations in other places in these kingdoms. There was an excellent article in *Chambers's Journal* for the month of January on this "New Development of Shopping." This system might be advantageously adopted in agriculture and the cultivation of the soil. An eminent member of Parliament has proposed that market gardens should be established on a co-operative system.

There is no reason why similar associations should not undertake the farming of land, and thereby the production of food, the rearing of cattle, and everything connected with the soil. The labourers and servants of such companies will be better educated, better housed, and better paid, which would lead more to civilisation. Better shelter would be provided for the stock, improvements would arise in the breeds, more machinery would be employed, worked by steam and water, &c., a larger quantity of land would be drained, and a greater extent of the improvable waste brought into cultivation. By the increase of house feeding, more manure will be preserved and made available. Hitherto, by the system of grazing only, much of the good of the droppings of cattle is lost in the air, which by house feeding will be saved.

PUBLIC RIGHTS AND PUBLIC  
NUISANCES.

## TWENTY-FOURTH ARTICLE.

## THE ADULTERATION OF TEA.

THE people of the British Islands may be said to be, *in globo*, at present a race of tea-drinkers; but if a comparison was drawn we think it would be found that the Irish population, in proportion to their circumstances, are the greatest tea-drinkers—the very poor as well as the very rich having an equal fondness for the brewed beverage. In the houses and cabins of the poor, whether city mechanic or porter, or town or agricultural labourer, tea is the one thing that is never forgotten; tea is the article that must and will be provided at all hazard and sacrifice—tea, tea, tea, morning, noon, and night. Bad or good, the poor of Ireland are so habituated to the use of tea that it would be the greatest punishment you could inflict upon them, in their own view of the case, to deprive them of its use, or to increase its price to that degree that its cost would limit their indulgence.

It would be interesting to trace the history of the first use of tea in Ireland, and its gradual, indeed we might say rapid incorporation as a diet and beverage among our daily meals. It is not our purpose to trace the history of its use in this country, though it may be added here that two centuries ago very little tea was used; and, even a century and a-half ago, though in constant use amongst the wealthy in this island, yet from its high price it was not in general use among the working classes.

The Irish population took it favourably from the first, and speculative traders were not behind-hand in catering for those who betrayed such a partiality for the “cup of tea,” by adopting adulterations to drive a good trade and gratify the poor by tea at a “come-at-able” price. The institution of tea-drinking in Ireland generated shortly another institution that still lives, viz., “cup-tossing” i.e., fortune-telling, and this pastime was practised to no small extent in the last century even when tea was eight to ten shillings the pound. Adulteration, however, before the close of the eighteenth century, in Ireland, aided the art of “cup-tossing” and afforded a livelihood for the wandering fortune-tellers.

In a Dublin magazine, near the close of the last century, a writer says:—“The adulteration of tea is equally pernicious and extensive with that of wine. A capital tea-dealer informs us of the method of making smouch with ash leaves to mix with black teas. When gathered, they are first dried in the sun, and then baked; they are put on a floor and trod until the leaves are small, then sifted and steeped in copperas with sheep’s dung; after they are dried on a floor and are fit for use. The quantity thus manufactured and nicely made up in real Chinese chests is incredible. This wretched trash is sold to the poor at a cheap rate, poisoning every power of nature, which is but too apparent in enervated bodies and puny offsprings.”

Ash, thorn, sloe, black currant, and other leaves were used as a substitute for tea in Ireland early in the last century, and afterwards the leaves of these trees were extensively used as adulterants. Ruttly, in his “Essay towards a Natural History of the County Dublin,” affords us instances. Speaking of the white or hawthorn tree, he says:—“An infusion of dried leaves in warm water has a slight stringency, and is no bad substitute for tea; and if prepared with the dry leaves and flowers, has a grateful ratasia flavour, superior to most of the teas from abroad.” The common bramble or black-berry bush was pressed into service for tea in this country. Ruttly says:—“The leaves, which by their gentle, grateful smell and flavour when dried, with their astringency, might serve, perhaps, as not the worst *succedaneum* for green tea.” Of the blackthorn or sloe tree, in addition to mentioning that

a not unpleasant wine like cider is made from the fruit, adds:—“The leaves, well dried and saved, make an infusion not much less grateful than some teas from abroad; it has a ratasia flavour and slight astringency, being made of the young tender leaves before blossoming. Several persons have been detected in selling these for Bohea tea, and it were to be wished that no frauds were more injurious to health than this.” So, in Ruttly’s opinion, sloe leaves were considered rather harmless; but if even a good substitute for tea, they were pressed into service as a fraud upon the buyer, who paid for tea but got sloe leaves.

Apple and crab-tree apple leaves have been and are used for mixtures. Of the former Ruttly writes:—“The tender leaves are sometimes used to sophisticate tea, having a slight astringency and pleasant flavour.” Of furze, whins, or gorse, he writes:—“The tops gathered free from rain or dew in August, 1752, had a most grateful smell, superior to any green tea, and, used like tea, are scarcely less grateful and probably more wholesome.” Of the wild brier or dog rose, our author says:—“Moreover the leaves of roses of all kinds, and especially the canina, dried and infused in water, are recommended in the *Epemerides Naturæ Curiosorum* as a substitute for tea, giving a most pleasant greenness and in the subastringent taste and grateful smell being equal or superior to tea, and equally or more wholesome.” The flowers of meadow-sweet were also used as a substitute for tea, and the toasted leaves of the wild marjoram. A variety of the flowers and leaves of other plants were pressed into service in the last century for substitutes, but now they are used as adulterants. The more common plants now in use are plum, sloe, ash, alder, hawthorn, poplar, willow, elm, orange, horse-chestnut, plane, beech, and oak.

There were curious opinions expressed in the last century about the injurious qualities of tea, some writers asserting that suicide would not be so frequent or held in so little detestation if a better diet than tea were in fashion, and it was also asserted that there was a strong connection between whiskey and tea. It was certain that the higher classes were particularly adverse to their servants or the poor taking to the drinking of tea, as their taking to it rendered it a luxury no longer for high life. It was considered no less than an iniquity on the part of nurses indulging in the habit, and that a great mortality was occasioned by their want of care. One cause of the diminution was said to arise from the nurse throwing away upon tea and sugar her slender allowance, which it was said should purchase the best meat, milk, and bread. The nurses and other domestics of the household were not, however, to be frightened by the opinions of those in high places, or their lords and masters, for they cribbed the tea when they could not purchase, and indulged in the habits of their superiors.

One of these opponents to tea-drinking among the humble held forth in the following manner:—“If you acquiesce in their using tea, and provide them with good tea, you increase the expense, and, instead of persuading them to lay out three pence for a pound of good beef, to make good broth, you will entice them to pay ten shillings for a pound of tea, which creates hunger or destroys digestion.” The nurses or housemaids were not, however, changed from their fancy by this sort of advice.

Some of the domestics, when they re-stewed the leaves sent down from their mistresses’ breakfast tables, put them to dry, and found purchasers for the article. These well-used leaves again passed into the market, after being dyed in a solution of Japan earth and getting a little mixture of other inferior tea, and was re-sold for bohea.

The adulteration of tea, it may be seen from what we have written, is not a matter of fifty or a hundred years old, but has been practised from the beginning, and has grown larger in extent yearly until our own time.

Exhausted tea leaves are at present dried and coloured with catechu and an iron salt; they are next faced and mixed with a small quantity of good tea. This mixture is known as Maloo mixture or Lie tea, and the latter is made of tea and other leaves with plaster of Paris and sand, with the addition of starch or gum as a binder to form granular particles, which, being “faced,” resemble green and black teas, as the case may be. The two chief classes of teas of green and black varieties are the Hysons, Twankey, and Gunpowder, which belong to the green class; and Congou, Pekoe, Souchong, and Bohea, which are of the black varieties.

In our next paper we will treat of the chemical properties of some of our present teas in use, and of the abuses that have crept into the trade, as also of other matters which the subject suggests.

THE SAND-BLAST  
AND ITS ADAPTATION TO  
INDUSTRIAL PURPOSES.\*

In this process, which is the invention of Mr. B. C. Tilghman, of Philadelphia, a jet of sand (propelled at a high velocity by a steam or air-blast) is employed as a tool for cutting stone, and for producing ornamental carving on stone and other materials. At a lower velocity of jet it is also employed for grinding and ornamenting the surface of glass. The cutting, grinding, engraving, and ornamenting of glass, stone, wood, and other hard substances are operations requiring a considerable expenditure of time and labour, and some of them a vast amount of skill. The object of the sand-blast process is to economise time and reduce the amount of skilled labour required to produce ornamental patterns and architectural devices in stone, slate, marble, and other hard substances.

This new process in the arts is based upon the fact that when grains of sharp sand are driven with a high velocity against a hard surface, such as glass, stone, slate, marble, wood, or iron, the surface is cut away more or less rapidly. The greater the pressure of the steam or air which produces the jet, the higher is the velocity imparted to the grains of sand, and the more rapid and powerful their cutting effect upon the surface exposed to their action. When driven at a high velocity the impact of the grains of sand will cut substances much harder than themselves. Corundum can thus be cut with quartz sand, and quartz rock can be cut by small lead shot. The hardest steel, chilled cast iron, or other metal can also be cut by a stream of quartz sand. The action of sand driven at a high velocity on the hard surface of glass, wood, stone or slate, is very rapid, and if a sheet of plain polished glass be subjected to the sand-blast it will be quickly depolished or ground, but if a portion of its surface be protected by covering it with some soft or elastic substance, such as indiarubber, paper, or other suitable material (cut to any particular pattern or device), all those parts so covered will remain intact, while the exposed surface will be ground or cut away by the impact of the sand. By means of stencil plates, letters or designs can be engraved upon stone, slate, and other hard substances; also by varying the shape, number, and direction of the jets of sand, and traversing them over the work, cuts or holes can be made of any shape or size.

For ornamenting stone, marble, slate, granite, or wood, iron templates made of the required pattern are used to protect the stone or other material from the action of the sand at all such parts as are not to be cut away. These templates, which are of cast iron, are very easily made. The process adopted is to draw or transfer the pattern (either in pencil or ink) on to the surface of a piece of wood of proper thickness, and then to cut out the design with a fret saw. The

\* By William E. Newton. Read at meeting of Society of Arts, February 10th, 1875.

wooden pattern thus made is used to produce a mould for an iron casting in the ordinary manner. An iron template formed in this manner, and about 3-16ths of an in. thick, may be used 100 times to produce the same pattern on stone of moderate hardness. If made of malleable iron, the template will last about four times as long. It will be evident from the above explanation that almost any design an architect may make (however elaborate it may be) can be cut in flat-relief in stone, marble, slate, or wood.

The peculiar feature of the sand-blast process which distinguishes it from the other methods of cutting and grinding is, that each grain of sand acts by its own velocity and momentum, like a bullet or projectile, and pulverises or indents the object it strikes. In consequence of this peculiarity of its action, some substances (which, though comparatively soft, are also tough or elastic, and cannot, therefore, be pulverised by a blow, such as copper, lead, paper, wood, or indiarubber), are less rapidly cut and ground by the sand blast (particularly at moderate velocities) than much harder substances of a brittle nature, such as stone, glass, or porcelain. A peculiar advantage of the sand-blast is that its action takes place with equal effect upon irregular surfaces, and therefore recesses hardly accessible to ordinary methods of working can be cut. Steam is generally found most convenient for the impelling blast, particularly for high velocities, as when operating on stone or marble, but in some cases air is preferable. Steam of all pressures has been used up to 400 lbs. per square in., and its efficiency has been found to increase with the pressure.

The sand is fed into a funnel, which is connected by a flexible pipe with an iron or steel tube of any convenient length, and of about 1-6th in. bore. This sand tube is secured exactly in the centre of a brass casing, which forms the steam chamber. The annular space between the two tubes is closed steam-tight at the back end; and at the front end or orifice the casing is shaped with a tubular neck, and brought to the same length as the sand-tube. The neck of the casing is bored out to a diameter of  $\frac{1}{4}$  to  $\frac{1}{2}$  in. for a length of about  $\frac{1}{2}$  in. from its end. For about  $\frac{1}{2}$  in. in length from the end, the sand tube is reduced to 0.23 in. external diameter, so as to leave a uniform annular opening of 0.015 in. in width, extending backwards for a length of about  $\frac{1}{2}$  in., and then enlarging gradually to the full diameter of the casing. This annular passage forms the opening through which the steam-blast issues. The casing or steam chamber is connected with the boiler by a flexible pipe, so as to allow of the jet apparatus being turned and moved in any direction. A tube, called the nozzle-tube or gun, about  $\frac{1}{2}$  in. bore and 6 in. long, made of wrought iron, steel, or chilled cast iron, is fastened on the neck of the casing by means of a set-screw. The end of the sand tube is accurately adjusted and fixed in the centre of the steam aperture, so that the annular opening is everywhere of the same width all round.

The sand used is sifted of even size, and should be clean, hard, sharp, and dry, so as to run regularly through a small hole without clogging. The steam should be perfectly dry, and when used at a distance from the boiler a steam separator should be added to free the steam from condensed water.

In the working of the instrument, the steam, when turned on, issues with great velocity from the annular opening, and creates by suction a current of air through the sand tube. A valve in the bottom of the sand-box is now opened sufficiently to let a stream of sand of from one to two pints per minute fall into the funnel beneath, whence it passes down the sand-pipe and is carried by the current of air through the sand-tube and is sucked into the jet of steam, by which it is driven through the nozzle-tube at a high velocity, and finally strikes against the stone to be cut, the end of the nozzle being held at a distance of about 6 in. from the stone. The shattered fragments of the sand and

stone, partly in the state of very fine powder, escape sideways and backwards together with the steam.

In cutting granite with a steam jet of about 300 lbs. pressure per square inch, an inclination of about one in nine from the perpendicular will make the sides of the cut parallel; but with the same jet acting perpendicularly on rather soft burnt brick or on sandstone, the sides of the cut are almost parallel. Sufficient space must always be allowed for the escape of the waste steam and sand. By directing the blast-pipe successively to all parts over the surface, the stone will be cut down either with parallel sides or with the sides undercut, so as to make a hole of larger diameter at the bottom than at the top. It will now be understood that if a metal or other perforated template, with any desired pattern formed thereon, be placed on the upper face of the stone, the latter will be cut away by the sand-blast at all parts which are not protected by the template.

The quantity of stone cut away by the sand-blast is much greater when ample space is afforded for the free escape of the expended sand and steam after they have struck the stone than when the space is narrow and confined. When a rapid lateral traverse is given to the blast-pipe or to the stone, so that the sand is constantly striking upon a fresh surface, a much greater cutting effect is produced than when the blast is kept directed upon one spot. The reason of this is that when the sand rebounds from the stone, it interferes considerably with the fresh sand which is being projected against the stone. This interference is particularly evident when a hole is cut but little larger than the diameter of the sand jet. It has been noticed that when the sand-blast is held at 4 or 5 inches distant from a stone, a greater quantity is cut than when held at only 1 inch distance; also that when the sand-blast is directed at an angle of from 30 to 45 degrees from the perpendicular, a greater quantity is cut than when the same sand-blast at the same distance is directed perpendicularly upon the stone. The explanation of these cases appears to be that the divergence of the sand-blast spreads it over a wider surface of the stone, and also gives more room for the waste to escape, thus avoiding interference with the sand in the jet. The quantity of sand used with a given steam jet may be considerably varied according to the effect desired to be produced. When a soft stone is to be cut over a wide surface (and there is consequently a free lateral escape), two or three times the quantity of sand used in the preceding cases can be employed; but where a hard stone is to be cut in a narrow groove, a small feed of sand produces a better result.

(To be continued.)

#### CHRIST CHURCH CATHEDRAL.

THE eminent architect entrusted with carrying out the works of restoration at Christ Church Cathedral, is credited by some of our daily papers with having drawn up "a complete scheme of subjects" for the stained glass or memorial windows intended to be erected in the cathedral. To the scheme of beautifying a church or cathedral by the means of memorial windows, carried out in a proper and dignified manner, few, perhaps, can object. It is meet that Christ Church Cathedral should be graced with worthy specimens of the art; but to the manner in which the question has been obtruded upon the public notice by some of our daily papers we must emphatically protest. Business is business, of course; trade is trade, speculation is speculation, but puffs direct are not the manner by which the public should be enlisted in support of the stained glass movement inaugurated for the ornamentation of Christ Church. If it is a truly artistic scheme to the credit of Art, why let it be supported; but if it is a mere speculation—a mere trade affair, of the earth

earthly,—the less that is said about the affair the better. No doubt, creditable specimens of stained glass in the shape of memorial windows will be put up in Christ Church; but we are entirely opposed to this "Windows to Let" process brought before the public in such an objectionable manner.

Our professional constituency will understand us when they read a little further. We are told that the stained glass windows have been designed by Mr. Holloway, and the entire will be carried out by two of the principal manufacturers in England. Those in the eastern part of the cathedral being entrusted to Messrs. Clayton and Bell, of London, and all in the nave, aisles, and transepts being committed to Messrs. Hardman, of Birmingham. We are told that all the windows in the eastern portion have been already engaged, as also the clearstory windows of the nave. The great western window, too, and "several others as well," we are further informed, have been bespoken "by various private persons" as memorials to private members of their families; one has been engaged by the committee of the Robinson Testimonial, and "it is not unlikely that the windows of the south transept will be taken to form a memorial to the venerable Duke of Leinster, who took the warmest interest in all that concerned Christ Church, and whose family has been connected with the cathedral for centuries." Perhaps there is nothing very objectionable in what has just been stated, but the following is worthy of notice:—

"In one way or another, the greater portion of the windows have been taken up, so that there now remain not more than thirteen in all disengaged, viz., three in the nave aisles and ten in the transepts. So that those who desire to obtain permission to erect a memorial window should apply without delay.

"The cost of the nave-aisle windows will be £72 each, and that of those in the transepts £38 each, exclusive of the charge for carriage and fixing, which will be much reduced if all the windows are erected simultaneously.

"Application should be made as soon as possible to—" &c.

There is a little too much of the old showman's or the auctioneer's style of invitation in the above appeal. Apart from what we have written we wish to say, that no one is more interested, on national and artistic grounds, in seeing the successful completion of the works of restoration than ourselves. We appreciate Mr. Street's ability, and we are proud of the great munificence of one of our merchant princes who has so nobly come forward with the requisite funds. We hold, at the same time, that everything connected with the restoration of Christ Church Cathedral should be carried out with proper dignity and respect, for the credit of all—the country, the profession, the church, and the arts represented.

#### THE BALFE MEMORIAL.

THE memorial committee have issued an address to the people of Ireland for support, to enable them to erect a memorial worthy of the great composer. As the committee estimate the funds required at the very moderate sum of £1,000, it is to be hoped that there will be a speedy and generous response. Our countryman has been honoured and monumented on the Continent and in the sister kingdom by strangers who appreciated his genius, and it would be strange indeed if his native city was so far oblivious of his genius as not to erect some testimonial to his honour and well-deserved fame. The foundation of a scholarship, as first discussed, though not inapplicable, yet we think the erection of a statue to Balfé in his native city is the most fitting testimonial, and will accord better with the ideas of our people. We may state here that those desirous of co-operating in the movement can address their communications to the hon. secs. of the committee, at the Mansion House. Contributions may also be sent to them, or lodged to the credit of the fund in the National Bank, College-green.

### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At the ordinary general meeting of the Institute, held on the 15th ult., under the presidency of Sir Gilbert Scott, the secretary, Sir Charles Eastlake, announced that the council had awarded the prize of "Pugin Travelling Studentship" to Mr. James Neale, of 56 Wigmore-street; that Mr. G. D. Oliver had gained a medal of merit; and that Mr. E. J. Munt, Mr. E. J. Langham, and Mr. May, had been honourably mentioned. The drawings of these gentlemen were on view. The president especially mentioned that Mr. Neale's work deserved careful inspection, and that his drawing of St. Alban's was a most perfect one of the abbey. Mr. J. T. Wood read a paper on the "Temple of Diana at Ephesus." A long discussion followed, in which Mr. Hyde Clarke, Mr. Penrose, Mr. Burton, Professor Kerr, Sir Gilbert Scott, Mr. Cates, Mr. Dawson, and others, took part. The president, in conclusion, thought that the extreme importance of Mr. Wood's discoveries had been underrated; he did not think that the discovery was small in its results. After speaking of the beauty of some of the antique specimens of ancient art that had been excavated under Mr. Wood's supervision, the president said—Taking it all in all, it was the greatest discovery made in the present day. The question was whether they were to leave the excavation alone, or were they to allow the Government to suspend the work; and were they to suppose that there were other great drums (columns) around what had been discovered. He thought everything possible should be done to force the Government to help to carry out this great work.

### THE ROYAL HIBERNIAN ACADEMY.

In the exhibition of this year, which was opened on the date of our last issue, there are several pictures by Irish resident and non-resident, and English artists, worthy of note and worthy of a visit. We have not space to give a detail, neither have we had time for a careful examination of the relative merits of the paintings or other objects of the Fine Arts on view. The contributions of Mr. Colles Watkins, the two Greys, Mr. A. Burke, Mr. Vincent Duffy, Mr. Edwin Hayes, Mr. Williams, and a few more, which we may particularise hereafter, are very good. The above include landscapes, seapieces, and life studies. The works on view are considerable, the majority of them being of the realistic school, but there is a sufficient variety to interest lovers of nature and art, in general and special directions.

### THE HEAVY "LIGHT" BILLS.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—The numerous complaints from gas consumers about the excessive amounts of their last quarter's gas bills which appear in the columns of our daily papers, are well calculated to cause a stranger, on reading them, to form an opinion that the dealings of the Gas Company with the consumers is a war of cunning or scientific trickery, success appearing to be the rule of right or wrong—honesty an affair of taste or decency. It is a matter of much surprise that none of the consumers who are complaining of their gas bills being so exorbitant for the last quarter, as compared with the bills for the quarter ending December 1873, do not go further back and make a more perfect comparison. In 1870, when the gas used to be purified with lime, the pressure named in the seventh clause of the Gas Act (8-10ths of an inch) was found to be sufficient, and in many districts 4-10ths answered, the light then given from the gas-burners being much better than we enjoy at present, and a much smaller bulk of gas had to be paid for. In 1874-5 a greater pressure is required to force the requisite bulk of the fluid now called gas through the consumers' meters to give the

variable light complained of. In London, where 16-candle gas is supplied by the Metropolitan Company at 8s. and by the Phoenix Company at 8s. 9d. per 1000 cubic ft., the pressure on the gas mains after dusk is only 9-10ths of an inch. In Dublin, inspectors of gas in their reports for the week ending on the 19th inst., respectively name the pressure after dusk as being from 2 in. to 3 in., and from 28 to 30-tenths of an inch. In order that your readers may better understand how this difference of pressure on the gas mains affected the pockets of gas consumers in 1870 and in 1874, I give the following tabular return of the bulk of gas charged for, and the sums paid for it each quarter during the years 1870-3 and 4, the consumer carefully using it from dusk until a given hour, as can be satisfactorily proved, and no leakage ever permitted; the figures in it I copy from the Gas Company's bills:—

Years	Quarter Ending						Total Amounts	
	March		June		September		December	
	Bulk	Cost	Bulk	Cost	Bulk	Cost	Bulk	Cost
1870	c. ft. 2400	£ s. d. 0 11 10	c. ft. 1200	£ s. d. 0 6 2	c. ft. 1600	£ s. d. 0 7 11	c. ft. 2900	£ s. d. 0 13 10
1873	c. ft. 2600	£ s. d. 0 15 1	c. ft. 1700	£ s. d. 0 10 1	c. ft. 1400	£ s. d. 0 8 5	c. ft. 3200	£ s. d. 0 18 4
1874	c. ft. 3300	£ s. d. 0 19 2	c. ft. 2000	£ s. d. 0 12 0	c. ft. 1900	£ s. d. 0 11 2	c. ft. 4800	£ s. d. 0 1 6 3
							c. ft. 8100	£ s. d. 1 19 9
							c. ft. 8900	£ s. d. 2 11 11
							c. ft. 12000	£ s. d. 3 8 7

\* During this year the illuminating power of the gas was 16-candle, and its price 4s. 6d. per 1000.  
† The illuminating power of the gas supplied during 1872 and the two first quarters of 1874 was said to be 20-candle; 5s. 6d. per 1000 its price.  
‡ The rent of meter was increased from the commencement of 1874.  
§ On July 1st, 1874, the illuminating power of the gas was said to be reduced to 16-candle, and its price settled for two years at 5s. 4d. per 1000.

The bulk of gas charged for to this consumer for the quarter ending December, 1874, is 50 per cent. in excess of the bulk charged to him for the quarter ending December, 1873. The gross bulk of gas charged for in 1874 is nearly 50 per cent. in excess of the gross bulk charged for in 1870, and the cash paid by him for the same amount of artificial light in 1874, is almost 75 per cent. in excess of the sum paid in 1870. It might be asked, cannot this state of things be checked, and why is it not?

At the meeting of the Liverpool Corporation on the 10th inst., the report of Mr. Deacon, Borough Engineer, was read. In it he complained, along with other gas matters, of the *undesirable pressure* requisite to bring the public lights to their proper standard. I believe that the manager of the Liverpool Gas Works is not a relative of his, and that he little cares if *successful management* of that gas works gives a dividend to the shareholders or not; and I may here add that the appointment of the Inspector of Public Lighting by the Dublin Corporation being allowed by the ratepayers, is looked upon by many persons connected with the gas trade in England as a slur on the intelligence of the Dublin gas consumers, the appointment being, in their opinion, repugnant to common sense.

The Gas Question has reappeared in the form of a burlesque, entitled "*Cleminshaw v. the Dublin Corporation; or Law, and Justice.*" The first act of it was played out in the Second Queen's Bench on the 19th inst. The presiding justice, when directing a verdict for them, seemed as if—

"That ties around his heart were spun  
Which could not, would not, be undone,"

and in his impassioned style of fervid eloquence deplored that the Corporation were prevented from having the control of the gas supply of Dublin, which, if they had, the city would be properly lighted, instead of a lurid haze which was just sufficient to enable coal carts to commit either suicide or manslaughter.

This action being virtually a struggle on the part of the Corporation to neutralise the power of the Local Government Board in checking the Corporation accounts and surcharging improper payments will, I hope, yet be treated as it deserves. As it is, the ratepayers must be content with the amusement of witnessing such an ingenious effort; and, while it might cause a looker-on to inquire if the rates of Dublin were about to become the patrimony of a clique of clever municipal managers, it also teaches that a feeling of gratitude to former employers has not yet passed away from mankind. I am, sir, your obedient servant,

JAMES KIRBY.

41 Cuffe-street, 25th February, 1875.

### THE LATE SIR CHARLES LYELL, BART., F.R.S., F.G.S.

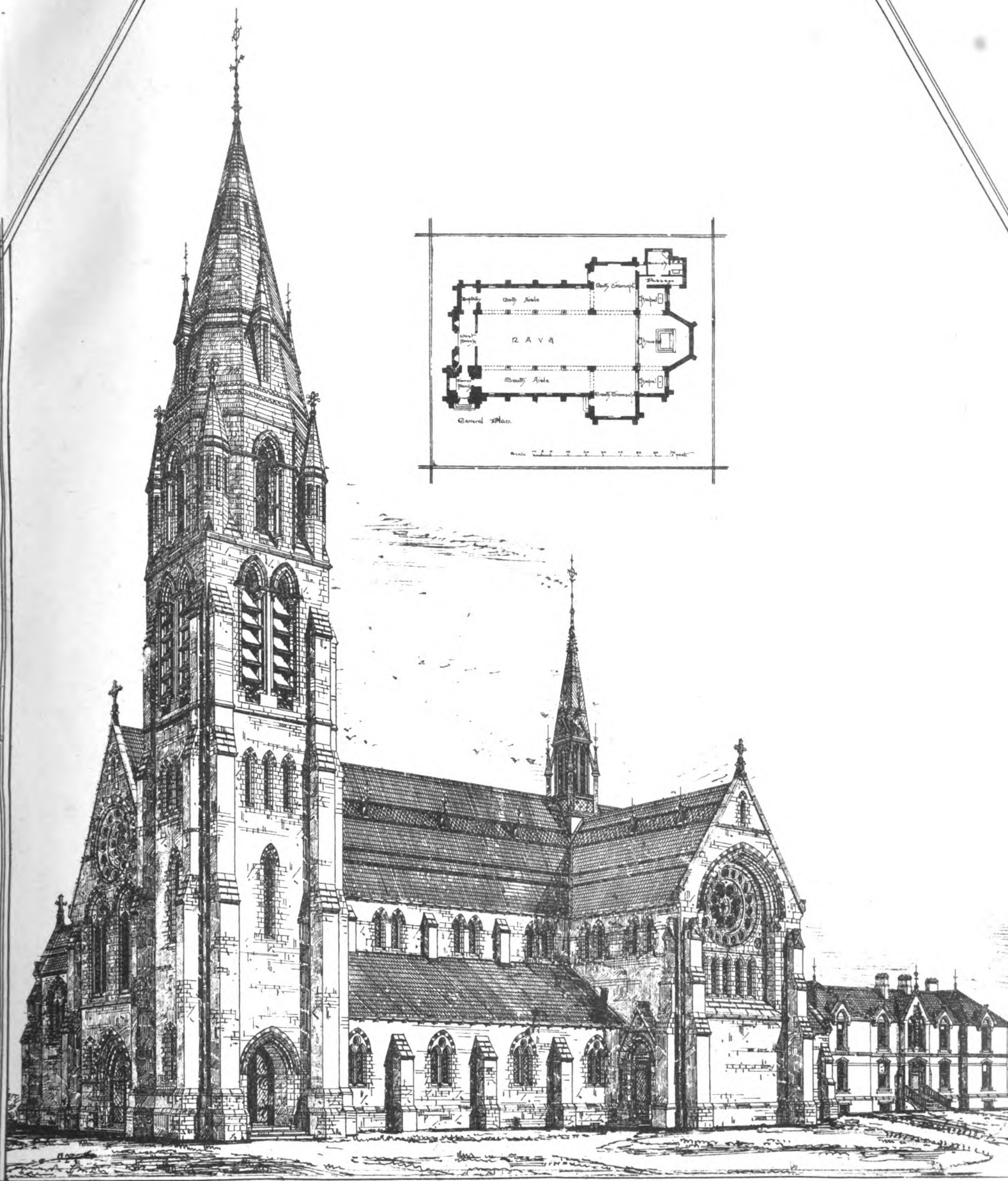
THIS distinguished geologist, whose works on geology may be said to be the first real contributions to the science, died at the advanced age of 78, in Harley-street, London, on the 22nd ult. He was educated at Exeter College, Oxford, and commenced practice at the bar, but gave it up for the pursuit of his favourite study. In 1832 he was named Professor of Geology at King's College, which appointment he soon afterwards resigned. He contributed several papers to the Geological Society's Transactions from the commencement of that publication, indeed he may be said to have been a constant contributor for years. In 1830 appeared the first volume of his great work, "*The Principles of Geology*," which was completed in 1834, and has since passed through many editions, attracting attention everywhere in all parts of the world. Another remarkable work was produced by him in 1838, entitled "*Elements of Geology*." Both of these works have exercised a remarkable influence upon the mind of the age, and given a great impulse to the study of the science.

Sir Charles Lyell travelled twice through the United States of America, and published several memoirs relating to the geology of the New World. He also travelled over the Continent of Europe. The general account of his journeys in America was published under the title of "*Travels in North America*," and another volume followed, "*A Second Visit to the United States*." His scientific observations both in the New World and on the Continent were produced in the Transactions of the Geological Society, reports of the British Association, and American scientific publications. His great services in the cause of geological science procured for him the honour of knighthood in 1848. He was twice elected President of the Geological Society, and in 1855 his University conferred upon him the honour of D.C.L. Sir Charles Lyell lived to find that his geological theories were confirmed, and still further confirmed recently in the voyage of the *Challenger*.

Only a week or two ago Professor Huxley, in lecturing at the Royal Institution, London, eulogised the great services of the departed geologist, while taking a survey of the knowledge we possessed on the subject of geology before the *Challenger* started on her voyage of investigation. He spoke of him as one "who for many years had, through good repute and evil repute, urged these views of the uniformity of the action of nature which had been thoroughly confirmed in the present instance, and who had lived to see these theories which had been vehemently assailed as rank heresies in his youth become in his old age the universal belief of all educated men."

Sir Charles Lyell was a native of Forfarshire, and was born in Kinnordy in that





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NEW CATHOLIC CHURCH · GOLDEN CROSS · GALWAY ·

J. O'Callaghan Esq. Arch. Dublin.



county, in the year 1797. He married early in life the daughter of Mr. Leonard Horner, and passed with her, as he was wont to say, "forty years of unbroken happiness." A few months since he presided at the fiftieth anniversary of the Geological Society. His remains were interred on Saturday last in Westminster Abbey. In a work which we reviewed in these pages in 1872 (by Professor Hull, F.R.S., the able director of the Geological Survey of Ireland), entitled "A Treatise on the Building and Ornamental Stones of Great Britain and Foreign Countries," the dedication was inscribed to Sir Charles Lyell by the author in these words:—"My dear Sir Charles—To you, who amongst the first encouraged me to undertake the preparation of this little Work, I now heartily inscribe it, as a small acknowledgment of the benefits I have derived from the perusal of your scientific writings, especially your 'Principles of Geology,' and of the uniform friendship with which you have honoured me during many years of my life as a migratory geologist. Ever faithfully yours, EDWARD HULL." The author of "Building and Ornamental Stones" had reason to feel proud of the friendship of such a man as Sir Charles Lyell, and his work shows that he profited by the instruction of his great friend and master.

#### THE ROYAL DUBLIN SOCIETY'S SCHOOL OF ART.

THE annual distribution of prizes to the successful students of the Royal Dublin Society's Art Schools took place on Friday, the 19th ult. His Grace the Lord Lieutenant presided, and there was a large gathering of distinguished visitors.

Mr. Thomas Jones, the President of the Royal Hibernian Academy, and Chairman of the Fine Arts Committee, brought forward the report of Mr. Edwin Lyne, the able and zealous head master of the school. During his address Mr. Jones remarked, in reference to the history, progress, and associations of the Dublin schools, that since its formation by Dr. Samuel Madden in 1731, several most distinguished artists had received their first instruction there. They had been better known as associated with the sister island, where they had found that fame which their own shores refused, and many of the modern artists, whose works his Grace was lately kind enough to express approval of at the Royal Hibernian Academy, and some of which he had honoured with special recognition, he was proud to say, had, for the most part, received their early instructions within the walls of these schools. He might, perhaps, be excused if he narrated a personal reminiscence of one whose name was illustrious. He, himself, was introduced to the school of the society at the age of ten by the hon. secretary, Mr. Isaac Weld, and the master gave him in charge to a boy older than himself, who was then finishing his course of studies. He would never forget the kindly face, dark, genial, friendly eye of that boy, who took so much interest in showing the newcomer his duty. That boy was none other than one whose loss they had recently to deplore—the late John Henry Foley, the great sculptor, a native of Dublin. He (Mr. Jones) would not attempt to say one word in approval of the report, but a letter received yesterday showed in a practical manner the benefits the society was conferring on the out-students, and the effect produced in the sister country. The letter was directed to Mr. Lyne, by Mr. John Lewis, carpet manufacturer, of Halifax, who obtained all the gold medals at Vienna, and received the honour of knighthood from the Emperor. Mr. Jones read Mr. Lewis's letter, in which he stated—"I had much satisfaction when with you in Dublin at seeing the designs executed by your students, showing an amount of innate taste and talent highly encouraging. . . . There is no reason why designs for art manufacture could not

be produced in Ireland as well as in other countries. I desire to particularise the beautiful designs I saw by Miss Ball, prepared for poplins and carpets; they showed great talent. . . . Would it be considered presumptuous in me, living at this side of the Channel, to solicit you to ask his Grace the Lord Lieutenant to present to Miss Ball a real Persian rug, which I send this day to your address, as a token of encouragement, and of my interest in the welfare of the institution."

The following is the chief portion of the report read by Mr. Jones:—

"It is satisfactory to me to be again able to speak of the continued prosperity of the schools, and of their eminent success in the national competition of London, one sixteenth of the entire number of national awards competed for by the 123 art schools of the United Kingdom having been won by the society's schools. The position occupied by the Dublin schools as compared with the leading schools of the most important cities and centres of industry in the United Kingdom, may be seen in the following table:—Number of national awards made in 1874. Dublin, 12; Edinburgh, 11; Manchester, 10; Birmingham, 9; Westminster, 8; Belfast, 6; Sheffield, 6; Glasgow, 4; Cork, 1. From the period of the establishment of the present national prizes in 1868 to the present time, 1,514 have been awarded by the Department of Science and Art amongst the schools of the United Kingdom, and of this number the society's school alone has carried off the very large proportion of one-eighth. It is worthy of remark that the schools have achieved their recent successes with an expenditure about half that of the period anterior to 1856. Up to that date they enjoyed the advantage of a grant from the Government of £500 per annum. The number of our works selected to enter the national competition amounted to 54. To those works competing for prizes of the third grade 48 were awarded to 37 students—a greater number than has before been obtained. I may observe that South Kensington obtained 54 and Edinburgh 29 of such awards. Great numbers of pupils continue to receive instruction in the drawing-classes in external schools of Dublin, established through the agency of this School of Art, or instructed by those who have been trained within its walls. In the absence of any exact enumeration of such I roughly estimate their number, at the present time, as about 8,000. The number of drawings, paintings, and models, &c., forwarded to London on the 9th day of April last, to enter into the national and other competitions, were as follows:—Number in elementary stages, 45 works; ditto in advanced stages, 123 works; ordinary class studies, 335 works—total, 503 works. The above works were executed by 239 students. The attendance during the year shows an increase of 51 over the preceding year. The total number of attendances amounted to 14,482; the fees amounted to £419 15s. 5d. The attendance of students in our schools compares favourably with that of the three leading schools of South Kensington, Edinburgh, and Manchester, in which the attendance has been as follows:—South Kensington, 723; Edinburgh, 494; Manchester, 470.

His Grace the Lord Lieutenant then distributed the prizes.

In the course of his reply to the thanks of the society, his Grace the Duke of Abercorn said:—Since I last had the pleasure of addressing the students in this place, both art itself and the inducements to artistic life have, as has been already mentioned by Mr. Jones, received a very strong stimulus. The great increasing general wealth of England has enabled thousands to whom art was hitherto a hidden treasure to gratify whatever may be their own views of artistic merit to the utmost extent of their fancy. I do not say that this has altogether been an un-mixed benefit, for I think indiscriminate wealth has very often encouraged indiscriminate art; the price paid has not always been the test of real merit; but I think the encouragement has had this great advantage—that real artistic merit is certain in the end to assert itself: and if it does not receive at once the advantage of momentary profit it is sure at least to secure future success and honour. Let me explain my meaning. I think that owing to the encouragement given by the over rich, perhaps not over scrupulous public, a tendency has arisen in a popular school of English art to run into realism; that is, an idea has arisen that exact and

accurate, and perhaps exaggerated copying of nature—of the fibres of leaves, and hues and texture of bark, the tessellated foliage of plants, and the gaudy colours of flowers, or even the cold or literal transcript of landscape—an idea has arisen that this is high art, and this realism has been carried into what I may call in other words the *tableaux des genre*, and also into sacred subjects, and we find the literal figure of ordinary everyday men and women substituted for the halo of poetic ideality with which such subjects had been formerly treated by great masters. This may be profitable art, but it is not high art. But don't imagine for a moment that I wish to advise my hearers not to cultivate profitable art. The idea I wish to convey is that there is something in the long run higher and more æsthetic than that profitable art. I would say to art students, study nature in all her forms, in the varied hues with which she colours the work of her vegetable world; study the anatomy of the human frame and the lights and shadows with which nature irradiates her landscape; but when you have done all this—when you produce the exact *fac simile* of life, the vivid likeness of the flower, the correct copy of the human form—don't imagine you have attained high art. You have only attained the alphabet of high art from which—to take a simile from the alphabet literary—must be evolved the higher ideas of design which constitute the artistic merit of the highest order. I would therefore say to art students, persevere to the utmost of your power in the study of nature, and in careful practice in the school of design of everything appertaining to nature as affecting art, for without that your artistic genius would be of no avail. I ask you to remember that this is but the means to an end, and that you should look upon it as a means which will enable you to give utterance to the higher conception of art, which alone will make you true artists. I shall illustrate my meaning by reference to a work which created a great sensation, and which, no doubt, has been viewed with extreme interest by the lady students. I mean Miss Thompson's picture of the "Roll Call." In that work you will see that there is a very great degree of realistic power displayed in the representation of the minute and accurate detail of a military company; but instead of being merely realistic the genius of the artist has invested the whole group with highly artistic conception. Every soldier in the picture has his own individual history, and a whole world of pathos and history is pointed out in every figure. This is a point to which I wish to draw your attention—not to confine yourself to the copying, or even the imitating of the best exemplar otherwise than as a means to enable you to carry out the higher conception of art. Ladies and Gentlemen, to the few observations I have ventured to make upon what is a phase of modern British art, I may add that I think it is a proof of the highly artistic character inherent in the Irish nation that the ideal and imaginative are more natural to them than mechanical realism, and therefore that judicious union between the two might be most successfully cultivated. There is no doubt that Irish students who have only had art training in Ireland have not altogether the advantage of the models and exemplars which others have enjoyed, and to which they have opportunities of more easy access. But taking this into consideration, we have every reason to be gratified with the progress made in this institution, and the great advance in art that was observable in the Royal Hibernian Academy Exhibition, which I had the pleasure of visiting on Monday last. That exhibition is a proof of the great success art training has had in Ireland. I will not detain you further than to say that if any means can be found for the advancement of art, or if any way can be devised by which art culture can be extended in Ireland, I will always be found most anxious and willing to afford all the assistance that lies in my power.

# ON SOME DIFFERENCES BETWEEN BRITISH AND AMERICAN ARCHITECTURAL PRACTICE.\*

A RESIDENCE of over two years in the United States, during which I have visited the principal cities and become acquainted with many of the leading members of the architectural profession, having previously spent the greater part of my life in the study and practice of architecture in the United Kingdom, has brought fully before my mind many important differences in the systems of practice prevalent in the two countries, the consideration of which may not be unworthy the attention of this Institute. The differences I refer to are not such as relate to modes of construction, employment of material, or artistic style, but have reference to the business relations between architects, clients, and contractors, rates of remuneration, measures of responsibility, and such like, constituting what may be called the economic aspects of the profession, apart from the scientific or æsthetic, and as such may be conceived as of great importance in themselves, and as presenting peculiar advantages for comparison, with a view to the adoption in one country of what has proved advantageous in the other, or the rejection in one of what has been found objectionable in the other.

I am very far from assuming, as one would suppose to be the case with many who have written on this great country and its institutions, that because of the youth of the nation, therefore it must be content to remain behind in many things, or in other words, that it is not as yet sufficiently developed or educated to avail itself of every improvement, general or special, which has been proved and found desirable in Europe. I have heard this idea broached as often by native Americans as by Europeans, but from whoever it originates, I disclaim all sympathy with it. On the contrary, I am convinced that there is no invention or improvement in the whole compass of modern civilization for which this country is not ready, and which, if it be really an improvement, will not meet with recognition proportioned to its value. The experience of the past, short though it be, fully bears me out in this view. So far from being disposed to remain behind Europe in the practice of any art, science, or business, the disposition of the American people is, if I judge it rightly, to advance beyond the older portion of the world; and in pursuance of this noble ambition, as every unprejudiced person must admit, they have often enough succeeded; for it is easy to point to many things that are far better contrived, ordered, and settled here than in Europe. Nor are such things to be looked for outside the limits of the architectural profession. Many improvements, both in design and construction, are to be found in American buildings, for which, as yet, we look in vain in Europe. And even if we confine ourselves to the limited aspect of the profession contemplated by the present paper, we find that in some particulars the condition of the profession is rather better here than there. For instance, the frantic and disgraceful struggles called architectural competitions are neither so numerous nor yet so humiliating as in England. Every time a church, school, or other quasi-public building is to be erected, a score or two of architects are not found ready and willing, as in England [and Ireland], to prepare elaborate and costly designs for it, on the bare chance of one of them getting the job and earning thereby a few hundred pounds or thousand dollars. Architects' assistants and draughtsmen are also somewhat better paid here than in England, though not as much in proportion as mechanics or other skilled helps. But when we have mentioned these two more favourable conditions, we have nearly exhausted all that exist, though not, let me hope, all that will soon be developed, when the really advantageous

position which ought to be occupied by the architectural profession, in so great and growing a country, is better understood.

Certainly, if we compare the amounts expended on buildings in this country with the corresponding amounts expended in England, the advantage would seem to be enormously on the side of the American architects. I have carefully observed the amount of work doing in several of the great cities, and am well satisfied that there is at least as much actual building doing in the United States as in the United Kingdom, but that the amount of money expended in this amount of building is on the average about three times as great. The difference is not so noticeable in small works, and the general use of wood in country houses tends to lessen it; but on the other hand, the use of brick, stone, and iron has become very general of late, and when we come to deal with structures where these materials are employed, the disproportion is enormous. I have little hesitation in saying that substantial buildings cost, on the average, five times as much here as in England. For instance, a first-class city church, bank, newspaper, or insurance office, that would cost 500,000 dols. here, could be built for £20,000 there. Nor does this enormous difference of cost seem to have any effect in lessening the number of costly buildings to be erected. The American public seems determined to have great and noble buildings, at whatever cost—a resolve which should be at the same time honourable to the nation and advantageous to the architects. I know of only one building now in progress, in the whole British Empire, on which the expenditure, after years of discussion, has been authorised to reach a million of pounds, and yet I could name half-a-dozen buildings in progress in the United States on which the expenditure is likely to reach three and even four millions of pounds. Whatever, therefore, may be the relative condition of the profession in the two countries, the public that has to be served is enormously more lavish in its expenditure on this side than on the other. Yet I fear that, whoever may reap the benefit, but a very small and undue share of this lavish expenditure must find its way into the pockets of the architects.

For when we come to compare notes as to the actual condition of the profession in each country, the advantage, apart from the two particulars previously noted, would seem to be altogether on the British side. First, the profession is much more numerous than here. About 150 architects' names appear in the New York business directory for a city of one million of inhabitants, while London gives about 1,000 to a population of three-and-a-half millions. Even this comparison should be adjusted, for the London and New York architects are not so much dependent on their respective cities as on the country at large, and I need scarcely say that the population of the United States is considerably greater than that of the British Isles. And, leaving numbers out of the question, let us compare the incomes realised as far as they can be judged. The profession of architecture is not a particularly lucrative one anywhere, but nevertheless, I think among its members indications of well-being are more manifest in England than in America. The leaders of the profession there, who are generally noted by having the somewhat doubtful honour of knighthood conferred upon them, have also commonly realised adequate fortunes or incomes, and, in a fair number of cases, have sat in Parliament and become chairmen or directors of banks, railways, and insurance companies. And the men in good practice, next to them, generally manage to keep up as good establishments as the men of same rank in other liberal professions. I must say I have heard very few cases of fortunes made by architects in America.

Among the numerous biographies of self-made men, which form so large a part of the popular literature with which "young America" is regaled, I find merchants, manu-

facturers, lawyers, doctors, contractors, engineers, builders, store and hotel keepers in abundance, who, in greater numbers than in any other country, have risen from nothing to affluence, but rarely if ever have I found mention of an architect of whom the same can be said. The only remarkable case I can call to mind is that of the late John Kellum, whom, as I am informed, this Institute would not admit to its membership. It can hardly be doubted, I think, that in this country architects are not much appreciated. Those of them who occupy public positions, even though charged with the direction of enormous and costly structures, which cannot be rivalled in these respects in Europe, are yet paid salaries which, when the high price of living is considered, amount positively to a bare subsistence. The architect of the United States Treasury in Washington, directing an expenditure of from ten to twenty millions of dollars annually, and conducting what is undoubtedly the largest architectural business in the world, receives the magnificent sum of 4,000 dols. a-year. The State of New York is a little more liberal to the architect of the new Capitol—one of the greatest architectural works the world has ever seen—and allows him 10,000 dols. Compare these with the salary of the architect of the City of London, who has only to attend to the buildings undertaken by the Corporation of that one city, and receives £3,000 a-year, besides a liberal extra allowance whenever special arrangements have to be made for the reception of a Sultan, Shah, or Emperor. Although Sir Charles Barry considered himself shabbily treated, he received 8½ per cent. on about two millions of pounds for the new Houses of Parliament, and the vigorous remonstrances made by the profession on that occasion secured that in all future works of like magnitude, such as the Government Offices and the Law Courts, the regular rate of five per cent. has been adhered to. A still more significant example of the slight esteem in which architects are held here is to be found in the notices of public buildings by the Press. Rarely if ever is the architect's name to be found in any of these. The committee, contractors, superintendent—anybody is deemed worthy of special mention but the architect, whose share of the work is not considered worth mentioning. Intelligent Americans, both at home and abroad, are not slow to boast of the great structures to be found in this country, such as the Capitol and other public buildings at Washington, but not one in a hundred seems to know who were the architects of these great works, or if he does happen to know, to think anything remarkable about them as having exhibited genius, skill, or taste of which the country might be proud. Not so the merest ragamuffin in the streets of Florence or Vicenza, who knows all about Michael Angelo and Palladio; or the youngest schoolboy in London, who knows St. Paul's and the London churches as the works of Sir Christopher Wren. The material elements of a building, its dimensions, the amount of granite or marble used in it, and especially the number of millions of dollars it has cost, are considerations to which the American mind is fully alive; but the mental or artistic element, the brain work involved in the design, and particularly the man who supplied this brain work, are matters apparently regarded with supreme contempt and indifference.

And yet this takes place in a country by no means ungrateful to her great men or humbler intellectual labourers in other fields. The names of the founders of the Republic, of the signers of the Declaration of Independence, of the generals, admirals, and statesmen who have adorned its history, are as much honoured here as are those of the corresponding men of other countries. American authors do not reap their full pecuniary reward, chiefly because of the absence of an international copyright, but receive their full share of honour at all events. American painters, sculptors, and musicians have no

\* By William Fogerty, F.R.I.B.A. Read at meeting of the New York Chapter of the American Institute of Architects, December 1, 1874.



cause to complain of want of appreciation by their countrymen, nor will either the incomes earned by or the consideration accorded to the members of the legal and medical professions suffer by comparison with the same in England.\* Architects seem to stand almost alone in the experience of neglect and even contumely in a country where their services ought to be more in request and more highly valued than in any other.

A very little observation and comparison will show that architects are much more extensively employed in the old country than in the new. Scarcely any building is undertaken in the United Kingdom without one. A sensible man there would think as soon of going to law without a lawyer as of building without an architect. In this country, however, nothing is more common than to see large and costly structures erected without any, the business being done, or rather usurped, by some boss mason or other contractor who succeeds too often in persuading the proprietor that he can do better than any architect, which would certainly be true if his own profit and interest were the only matters to be considered.

The Rev. Dr. Osgood, a well-known and warm friend of the profession, in the address which he gave to the New York Chapter about a year ago, admitted pretty much what I have stated above, when he alluded to there being "trouble between the American public and the architects." And as one of the means he prescribed to remove this trouble was that architects should use their pens more, I will endeavour so to use mine as to trace out some of the causes which bring the profession in this country into disrepute, and by comparison with the older country, to point out some of the means by which its status may be improved.

The chief element in the want of appreciation shown by the American public towards architects is to be found in the ignorance which prevails as to what the proper functions, responsibilities, and remuneration of architects really are or ought to be. A general idea of course prevails that architects "draw plans," but beyond this the most profound ignorance will be found to prevail. If we can only succeed in removing this ignorance, a vast deal will be done towards removing the evils which follow from it.

I have already alluded to the disgracefully keen struggles which take place in England over every public building thrown open to competition; but this after all is only one instance of the overcrowding in every branch of business which prevails there, and proves that at any rate the position of architect to any public building is something worth striving after; and it really is so, because once appointed to that position, the duties, responsibilities, and emoluments are understood and admitted as a matter of course. Here, on the contrary, once a design is selected, the architect has to enter on a series of discussions as to what further he is to do in reference to it; whether he is only to furnish the plans, or whether he is also to superintend, and in what way, and at what rates; if there is to be a superintendent besides the architect, and if so, whether he is to act over or under the architect. If it be settled that the architect is to be paid a commission, and the rate of that be settled also, a third question arises also as to what amount it is to be charged upon; whether upon the whole, half, or two-thirds of the cost of the work. That such questions can and do arise indicates, as above stated, a deplorable amount of ignorance on the part of the building public; but it indicates more—namely, a vast deal of neglect and irregular practice on the part of the profession. It ought surely be the business of the architects, individually or collectively, to enlighten the public on all these questions; for if not, who else is to do it? A proper code or system of practice is needed, towards

which the Institute has certainly made some approach, but this will be of no avail so long as the profession generally do not adhere to it in practice. The functions, powers, responsibilities, and charges of architects need first to be thoroughly understood and agreed on among themselves, next to be made known to the public in every possible way, and thirdly to be fully and honestly acted up to by the profession. When these three conditions are fully complied with, it will be seen whether the public will not accord a larger amount of respect to the profession than ever it has done hitherto.

In considering such a code or system of practice, the profession in this country ought to be possessed of a great advantage in having all the experience of the old country to guide them. Up to the present it would seem as if this Institute had been very much disposed to follow that example, for I observe the brief scale of charges issued by it agrees in the main with that of the British Institute. It, however, differs in being much briefer and less definite, the former of which would be an advantage if it did not involve the latter. Brevity is highly desirable if it be not attained at the expense of clearness. Now the scale of charges of the American Institute makes no mention either of a surveyor or superintendent (or clerk of works), thereby ignoring or leaving in doubt two most important points in architectural practice—namely, accurate estimating and proper supervision. Now, my observation during the period referred to above has led me very strongly to form the opinion that the total neglect of one of these points, and the irregular manner in which the other is performed, are among the most powerful causes that have contributed to make the profession at large enjoy so little of the confidence of the American public; and I therefore propose to consider these subjects in detail more fully further on.

If the American architects could succeed in getting the same rates of charges generally adopted here as in England, the profession ought certainly be a very lucrative one, for, as already observed, the cost of building is so much greater. To take the examples already quoted, a church or other first-class building for which the architect would receive £1,000 in the old country, he would get 25,000 dols., or nearly £5,000, for here. And yet he would have no more to do in one case than in the other. To be sure he would have to pay his assistants a little higher, perhaps twice as much as the same class of men receive in the old country, but this is almost the whole difference. The wonder is, then, that with such a scale of charges apparently in general use, the architectural is not the most lucrative profession in the country. But a little further inquiry will soon show that the attempt to establish the same rate of charges here as in England has not succeeded, and that, as a general thing, no such rates are paid unless on frame or other small buildings, where the outlay would not be much greater than on similar buildings in England. And I think the American public can hardly be blamed for hesitating to pay New York architects four or five times the actual money for the same services as is paid to London men, merely because it amounts to the same rate per cent. And I question whether this high rate being so publicly put forward, although privately departed from, does not frighten the same public from having anything to say to architects at all, and thereby defeats its own object. Certainly it has been noticed more than once that the architects who have habitually worked under that rate have done well, but that those who have persisted in adhering to it have done but indifferently or worse. I respectfully suggest, therefore, that unless it is to include more than what is ordinarily included in England, the five per cent. may be too high a rate for an architect's services on such buildings as those referred to, and might possibly, with advantage both to the profession and the public, be reduced.

(To be concluded in our next.)

## LANDLORD AND TENANT.

HOPE v. LORD CLONCURRY.

THAT a change is necessary in the laws of landlord and tenant is proved by the case of Mr. Hope v. Lord Cloncurry, in which, under the Irish Land Act, the Chairman of Dublin gave about half the plaintiff's claim, with costs, though the Vice-Chancellor had to decide against Mr. Hope on a law point previously—viz., that the late Lord Cloncurry having made a promise of a 21 years' lease, such was good only during his own life, as he had only a life interest. Now, to do away with this "*summum jus est summa injuria*," the Government should bring in a bill to enable all tenants for life to grant leases of 21 years, but not under the Government, or tenement, valuation (except in the case of mansions and demesnes), as such would have prevented this trial costing so much to the gentlemen concerned.

Well was it that Mr. Hope was a man of that position and wealth that he could afford to go through so much law to recover his rights, but he is blameable in three respects—first, in not getting counsel's opinion as to the power of Lord Cloncurry; secondly, as to depending on him; and thirdly, offering £4 per acre, or £1 5s. more than his contract, for the remainder of the term, thus paying extra on his own improvements and cash outlay.

Mr. Hope told us a couple of years after he took the lease that the late peer set it to him at £2 15s. on 21 years' lease, when offered £3 5s. by two graziers, simply because he, as a tillage farmer, would employ his staff of labourers, while the others would only have a herd and a boy.

As to the present Lord Cloncurry, we give him examples he ought to follow in future—viz., Sir Robert Gore Booth, Bart., M.P. for County Sligo, who, unasked, renewed a 31 years' lease with three young lives lately for Mr. Francis Barber, who expended £18,000 on drainage, buildings, and improvements, at the old rent, about £1 per Irish acre, when he could have got £2 10s. to £3; and of Mr. George Lane Fox, of Bramham Park, Yorkshire, where £10,000 had been spent without his knowledge on one of his Irish estates, giving almost double the terms offered by his agent.

These gentlemen are good honest Tories, as "conservative" of their tenants' interests as of their own—a lesson to some other landlords. At the auction sales by Mr. Hope on his eviction, the crops brought more per acre than the auction sales of his predecessor—viz., Swedish turnips, £28 15s.; hay, £14 15s.; wheat, £12 10s.; and oats, £6 15s., showing the results of capital, high farming, and skill. Such gentlemen should be encouraged by the landlords—to do otherwise is a shortsighted policy.

SPEED THE PLOUGH AND EMPLOY THE PEOPLE.

## CONG.

CONG, or Cúnga in the Irish language, means a narrow strip of land almost detached, as Cong is situated between Loughs Corrib and Mask, and squeezed in between the counties of Galway and Mayo, thereby forming a tail to the latter county, in which it is wholly situate, the larger part of the parish extending as far as Maam and Fairhill, in the county Galway. Formerly this village was a place of some importance. It was to Cong that Roderick O'Connor, the last King of Connaught, returned laden with spoil from his raid in Munster, after having set fire to the palace of his rival, to die there.\* Here also Ollamh Fodhla and other monks of eminence dwelt in days of yore.

The present population is about 400. The village of Cong can boast of an excellent hotel. There is a very neat church, recently built by Sir A. E. Guinness, Bart.; a small Roman Catholic chapel in the abbey grounds,

\* See Moore's "Ireland."

\* Professor Erichsen, one of the most eminent surgeons in England, who has recently visited this country, and lectured on the condition of the medical profession in it, is of opinion that that profession enjoys a higher degree of social status and consideration in the United States than in any other country.

a post office, and police barrack, constitute the "public buildings" of this ancient ecclesiastical city.

Cong possesses peculiar attractions not to be met with elsewhere in Ireland. It is favoured in having a good landlord, who will eventually make something of the new town, Lis-toheny (Cong), which he is building within half-a-mile or so of the old village. The houses of the new town are substantially built and slated. The thoroughfare along the new quay will be a marked improvement.

The waters of Lough Mask, after flowing noiselessly and imperceptibly for three or miles under ground, appear in such caverns as the Pigeon Hole and Horse Leap, which are immediately outside the gate of Ashford demesne. In this former cave may still be seen the enchanted trout of Mrs. Hall and Lady Morgan.

Cong, tradition says, was formerly inundated through the surplus waters of Lough Mask rising in them and drowning cattle, and otherwise injuring the inhabitants.

The graveyard attached to the old chapel occupies but a small space, not more (I estimate) than 800 superficial yards. In this little enclosure, corpse has been piled on corpse for the last eight or nine hundred years. Supposing the population of the parish to have been 6,000 souls, then thirty generations have been buried there since King Roderick's time. There is scarcely clay enough with which to decently cover any more. I would respectfully suggest that the landlord should be requested to enlarge or change the place of sepulture, and no doubt Sir Arthur would grant their prayer, as he is a good and generous man.

There is a bill before Parliament for a railway between Galway and Clifden. My project is still in abeyance; but I have no doubt that in the course of events the Cong and Claremorris line will become *un fait accompli*. C.E.

Ballinrobe, 20th February, 1875.

#### CABMEN'S SHELTERS.

It appears that we *must* follow in the wake of our English friends. An effort is, we are told, to be made to "introduce into Dublin the shelters for cabmen which have turned out so successful in London." We hope when the question of sites for the "rests" is broached in "The Hall" that the City Fathers will not stand in the way. A clerical correspondent states that a "cabman rest" "can be purchased for about £80, which provides for the cabman shelter, fire, and the means of cooking food." Perhaps a combination of the promoters of the "kiosks" and of the "shelters" could be effected, and structures erected in places suitable to the objects proposed by each. Prizes might be offered for the best designs. Happy Dublin juries! there's a good time coming for you, in spite of the sixpenny fare for two miles and Home Rule!

#### THE ARCHITECTURAL ASSOCIATION OF IRELAND.

The monthly meeting of this association was held at the rooms, 212 Great Brunswick-street, on Thursday evening, 25th ult. Mr. W. M. MITCHELL, President, occupied the chair.

It was much to be regretted that the inclemency of the weather prevented a larger gathering of members to hear the interesting paper on "Ornamental Design," by Mr. T. H. Longfield. The room was hung round with sketches of various examples of decoration, many of which Mr. Longfield had made himself during tours on the continent.

Amongst those present were—Messrs. S. Symes, J. J. O'Callaghan, R. S. Swan, W. O'Neill, C. H. Brien, A. W. Robinson, C. J. Allen, — Miller, J. C. Wilmot, J. L. Robinson (hon. sec.).

The minutes of previous meeting having been read and confirmed, the chairman

called on Mr. Longfield to read his paper, at the conclusion of which,

The chairman said the reader had brought an interesting subject before them, and one that admitted of some discussion, and he would like to hear the views of any gentleman thereon.

A discussion ensued relative to the examples of ornamental ironwork, and to the works and talents of Michael Angelo, &c., in which the chairman, Messrs. Symes, O'Callaghan, Longfield, J. L. Robinson, and C. H. Brien took part.

A vote of thanks having been passed to Mr. Longfield, the meeting separated.

#### COMPETITION FOR GOLD MEDALS.

##### ROYAL AGRICULTURAL SOCIETY.

THE following are announced as competitors for the gold medals offered by the Royal Agricultural Society of Ireland:—For the best Labourers' Cottages—Lord Castletown, Mr. Cochrane, and Mr. W. B. Smythe. For the best Drained Lands—The Marquis of Lansdowne, R. G. Cosby, M. J. Cochrane, Charles Wilson, and Mrs. Doughty. The following are named as judges—Messrs. D. A. Milward, J. M. Roysse, and H. J. MacFarlane.

#### CIVIC LYRICS.—No. LXXX.

##### "HARD LINES."

No health in the suburbs or city,  
No light in the houses or streets;  
No loans out of Government pity,  
Though the Faction madly entreats;  
No hope, save in raising the taxes,  
And crushing the city to death.  
Local rule revolves on its axis  
With swiftness that robs us of breath!

Reign, darkness and foulness and fever,  
And lying and plunder and dirt!  
Reign, ignorance! reign on for ever!  
You can do our masters no hurt—  
'Twas bred in the bone and the muscle;  
It cannot be cut from the flesh.  
How Dublin survives, 'tis a puzzle;  
She will need to be born afresh.

CIVIS.

#### DUBLIN CORPORATION GAS COSTS.

Mr. John M'Evoy, in reference to the suit *Cleminshaw v. the Corporation*, writes to a contemporary:—

"Mr. Cleminshaw is only one of your eminent gas engineers having claims against the Corporation in this matter. The three others are Mr. Jabez Church, Mr. G. W. Stevenson, and Mr. Pritchard. The eminent gas engineers settled with, we have next the eminent law agents, Messrs. Smith and Barry, the eminent Parliamentary agent, Mr. Muggeridge, then the eminent Parliamentary counsel, Mr. Somerset, Q.C., Mr. Norwood, LL.D., and Mr. J. O. Byrne, and as 'incidentals' to fill up a total of £4,000 or thereabouts, 'travelling expenses of deputations,' scrivenery, telegrams, cab-hire in London, &c. The cream of the joke (if it is a joke) is that no Act of Parliament can be produced which imposes a shilling of those costs on the ratepayers of Dublin. Whether do we live under Parliamentary law or the law of judicial Home Rule?"

#### DESTRUCTIVE FIRE AT MESSRS. MARTIN'S TIMBER STORES.

WE record with regret the occurrence of a most destructive fire at the steam saw-mills, timber stores, and joinery shops of Messrs. T. and C. Martin, North Wall. The public have already been furnished with details in the daily press. The loss of property has been great, including buildings, machinery, tools, and timber, the damage being roughly estimated at £14,000. The joinery shed, we understand, escaped destruction. The saving of this portion of the premises is a matter of congratulation, for had it succumbed to the fire more serious losses would have followed. The Fire Brigade, under Captain Ingram, their chief, assisted by Mr. Boyle, rendered all the aid it was possible for them to give. We

are informed that the loss is partially covered by insurances in several offices. We have little doubt that a few weeks will see operations renewed, and any loss occasioned by the workmen will be but of a temporary character.

#### THE O'CONNELL MONUMENT.

At a late special meeting of the committee, the following letter was read from Mr. Teniswood, one of the representatives of the late Mr. Foley:—

"GENTLEMEN,—As a considerable time has elapsed since the visit of Sir John Gray and the Rev. Father O'Rourke to the studio of the late Mr. Foley, to inspect the model of the O'Connell Monument, for the purpose of reporting on its condition, and having received no communication in reference to the report, or to the views of the committee bearing on the completion of the work, I beg, on behalf of the representatives of Mr. Foley, to state that, as the proceedings in probate are now merely awaiting certain formalities of the Court, I should be glad to receive the instructions of the committee for proceeding with the work, so that no delay may occur when the forms of administration are completed. "G F. TENISWOOD."

The Rev. Mr. Gaffney thought it would be reasonable if the committee asked the representatives of Mr. Foley to allow some artist of Mr. Foley's standing to superintend the progress of the work.

The Lord Mayor thought it was not at all likely that Mr. Foley's representatives would appoint any one to finish the work who would not be a competent artist, and able to finish it in the spirit in which Mr. Foley had undertaken it. It appeared that Mr. Teniswood had not been sent a copy of the report made by Sir John Gray and Father O'Rourke, and it now remained for the committee to send it if they thought proper. The next thing for their consideration was, that the representatives wanted the instructions of the committee to proceed with the completion of the monument.

After some discussion, it was resolved—

"That, as the letter of Mr. Teniswood gave hope of the speedy conclusion of the legal matters connected with Mr. Foley's will, we therefore adjourn the matter raised in his letter until Mr. Foley's representatives are fully and legally ascertained; that a copy of the report be sent to Mr. Teniswood; and that, when requesting him to give the names of the representatives, he also be requested to give the names of the artist or artists to whom it is proposed to commit the superintendence of the completion of the work."

It is scarcely to be wondered at that the committee hesitated to commit themselves by giving definite instructions to Mr. Teniswood, while legal matters respecting the administration of Mr. Foley's will remains in their present doubtful state. At a former meeting of the committee, as announced in our last issue, Mr. Thomas Brock wrote to say that he had been appointed, under Mr. Foley's will, to complete the statue, and that all difficulties in the way of taking out administration had been removed. Now, Mr. C. B. Birch writes to the Dublin Press, denying that Mr. Brock "had been appointed, under Mr. Foley's will, to complete the statue"; and further that Mr. Foley by his will had appointed three sculptors conjointly to complete all his unfinished works—Mr. Brock, Mr. Dewick, and himself (Mr. Birch). There is no mention here of Mr. Teniswood, who it appears to have been appointed sole acting executor under Mr. Foley's will. In the multiplicity of counsellors there does not appear to be wisdom. Are all the artists to have a hand in the finishing of the O'Connell statue, and is it Mr. Foley or the artists in question who are to be credited with the honour that may or may not appertain to its satisfactory completion?

At a subsequent meeting of the committee, held last week, Sir Dominic Corrigan took exception to the manner in which the business of the O'Connell committee and that of the Centenary committee had been mixed up. He thought the business of each should be conducted separately, and the minutes

recorded in a separate book. As one of the remaining trustees of the fund collected for the O'Connell Monument, he would be sorry to have it supposed for a moment that they had devoted one penny of the money to any other purpose than that for which it was subscribed.

A letter was read from Mr. Teniswood, acknowledging the receipt of a newspaper from the committee, containing the report of the visit of Sir John Gray and Rev. J. O'Rourke to Mr. Foley's studio to ascertain the state of the monument, and expressing satisfaction at the report.

It was resolved—

"That a balance sheet be prepared, showing moneys paid into bank in the names of the trustees, including payments of interest to present date, as well as expenditure, with dates; and that such balance-sheet be audited by a public auditor, to whom the necessary documents be furnished, and submitted, as soon as completed, to a meeting of the O'Connell Committee for publication."

### MEDICAL QUACKS.

**THE Medical Press**, in an article on Wednesday last under the title of "Veiled Obscenity," shows up the rascality of obscene quacks. It says that a Dublin daily in which the advertisement was found "was entirely unconscious (?) of its character, and at once stopped it." We regret to say that other Dublin weeklies and dailies continue the advertisement alluded to, and others of quite as bad a character. On several occasions we have made war upon these scoundrelly class of medical quacks, and unearthed them in their dens in London and Dublin, giving their real names and addresses, for which we were threatened with actions at law. We hold that the proprietors or editors of the papers which publish this class of advertisements are nearly as bad as the quacks themselves. We assert, and can prove, moreover, that the said proprietors, editors, and newspaper managers are quite conscious of the infamy and iniquity they are aiding and abetting by the publicity they afford these consummate scoundrels, some of whom are convicted swindlers.

### THE DUBLIN MAIN DRAINAGE.

RECKONING one's chickens before they are hatched is a foolish proceeding, but it has always been one of the constant failings of the Dublin Corporation.

In the House of Commons on Thursday, Sir Arthur Guinness asked the Chief Secretary for Ireland whether it is the intention of the Government to introduce a bill this session to amend the Dublin Main Drainage Act of 1871, for the purpose set forth in the memorial of the Corporation of Dublin to the Lord Lieutenant of Ireland, founded on their resolution of the 22nd of January, viz:—

"That application be made to the Government for a loan not exceeding £500,000 to carry out the main drainage works upon the following terms and conditions as to interest and repayment, viz:—The interest payable to be 3 per cent. per annum upon the net principal sum remaining due each year, the loan to be repaid in 73½ years, by the annual instalments of £8,000 referred to by his Grace the Lord Lieutenant, which will be granted year by year to the Corporation by her Majesty's Treasury, as well as by a proportion of the sum to be allowed by the Government in lieu of the municipal rates upon public Buildings in the Borough of Dublin, and estimated at £1,000 per annum; the Government accordingly to introduce and effect the necessary amendment of the Dublin Main Drainage Act by a public bill in the next session of Parliament, without cost to the Corporation."

Sir M. Beach.—The resolution to which my hon. friend refers is founded upon a remarkable misapprehension of the intentions of the Government and of the purport of the reply made recently by the Lord Lieutenant to a deputation of the citizens of Dublin. I have no intention of introducing any bill to provide that any loan made by the Government to the Corporation of Dublin for the purpose of the Main Drainage should be repaid in any such way as that suggested by this ques-

tion. The error originated entirely with the Corporation of Dublin, and the Government are no parties to it. All that was done was this—I was authorised last session to state that, if necessary, the Government would extend the borrowing power of the Corporation from their present limit of £350,000 to a further limit of £500,000.

Och! pillillu, wirrasthrue, ullagone!

### HOME AND FOREIGN NOTES.

Mr. William Fogerty, F.R.I.B.A., has resumed his architectural practice at his former address, 23 Harcourt-street, in this city. In our present issue we print the first part of a paper read by him recently before the New York Chapter of the American Institute of Architects.

**THE COUNTY SURVEYORS.**—A bill will be promoted in the present session of Parliament for the purpose of enabling grand juries to grant superannuation allowances to county surveyors who may be incapacitated by mental or bodily infirmity or by old age. We earnestly hope the promoters (Sir Colman O'Loughlin and Messrs. W. Johnston and Macartney) may be successful in their efforts.

**IRISH MANUSCRIPTS.**—In the House of Commons on Thursday night, Sir M. H. Beach, in reply to Mr. Sullivan, said that an estimate of the cost of translating important Irish manuscripts would be laid on the table, the Royal Irish Academy having expressed their willingness to undertake the work of translation.

**APPRECIATION OF AN EMPLOYER.**—A few days since a deputation representing the staff of printers of the *Freeman's Journal* waited on Sir John Gray, M.P., for the purpose of congratulating him on his approaching convalescence from his late serious illness. After the reading and presentation of the address (which was beautifully illuminated) and the reply thereto, the deputation were hospitably entertained by Sir John and Lady Gray.

**THE NORTHERN RAILWAY.**—On Saturday the shareholders of the Dublin and Drogheda and the Dublin and Belfast Junction Railways held their last separate meetings. To mark their high appreciation of the energy and zeal displayed by their secretaries, J. P. Culverwell and G. W. Greene, Esqrs., they have voted £400 for the purchase of testimonials to be presented to these gentlemen.

**FOUNDATIONS OF HOUSES.**—We (*Sanitary Record*) are glad to see that attention has been again drawn to the serious evil which exists in the suburbs of London. Wherever there exists a good gravel soil it is almost invariably carted away, and its place supplied to the depth of 6 or 8 ft. with old vegetable rubbish and decaying animal matter, cinders, oyster shells, the packing of orange boxes, old boots, broken bricks, and the debris of an unthrifty, squalid neighbourhood. When the surface has been raised to the level of the adjoining street, the speculative builder will set to work, and on this fermenting and putrefying mass will raise houses for the poor, the living rooms about 3 in. above the level of the ground. Fevers of all kinds will ensue, but the speculator who first robbed the land of its proper soil and then replaced it with such mischievous rubbish, and the builder who adopts it will go unpunished. This evil is not, unfortunately, confined to London, but exists in all large towns. It was discussed at the recent conference at Birmingham, and one, at least, practical remedy suggested. That the town council should take the management of all building lands. These grounds after having been properly drained and sewered, could revert into the builder's hands on payment of the quota of expense. In no case was the natural soil to be removed or rubbish deposited on a prospective building site.

**WALL TILING.**—The following is a proper way to lay glazed wall tiles, the same being equally applicable for internal or external coverings. I am presuming the tiles are intended to be laid on the sides of brick wall which should have the joints raked out a little so as to form a good key for the cement (in new work the walls so intended to be covered must not be trowelled or pointed at all). Then proceed to cover the walls with a five-eighths thick layer of cement composed of two parts Portland cement to one part sharp, clean sand, leaving the face of same crossed roughly; this should be allowed to set for, at least, a day before commencing to lay the tiles, which for ½-in. thick tiles should be then set or laid in the covering, with about three-eighths thick of cement and sand mixed as before described, so laying until all is completed, when a thin wash of pure cement must be skimmed over the face of tiles to fill up well all the joints, and after having been allowed to remain

for about twenty minutes, must be cleaned off with sawdust, when the laying will be complete. The tiles must be well soaked in water before being laid, and great care must be taken in procuring sand free from bituminous substances. The ordinary builder's plaster should never be used for laying any description of tile.—*Building News*.

### TO CORRESPONDENTS.

**IRISH ARCHITECTURAL ASSOCIATION.**—A letter in relation to the above body is held over for consideration.

**CITIZEN.**—The alternative is to increase the rates, to be sure, by deviating the usual schemes for the benefit of the lawyers and the promoters.

**CARPENTER.**—In "Weale's Rudimentary Series," there are two treatises on the subject Lockwood and Co., publishers, London.

**GAS CONSUMER.**—We will render every aid that we can to such a movement if honestly organised. The past should not be forgotten if relief should be afforded in consequence of present remonstrances.

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**ARCHITECT (Kingstown).**—The design to which you draw our attention is extremely like the one in the book named. Point it out publicly under your sign manual.

**AN ART-WORKMAN.**—There are very few valuable specimens of fresco existing in this country, in connection with our ancient ecclesiastical buildings. We have paid some attention to the subject and we hope on a future occasion we may be enabled to furnish a list.

**F—Thanks.** It is another specimen of the way Irish professionals serve their art and country.

Some articles and correspondence held over.

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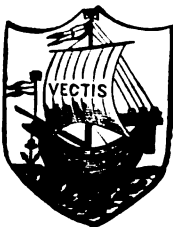
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# The Irish Builder.

VOL. XVII.—No. 366.

*Sanitary Government—The New Public Health Bill.*



IMPORTANT issues depend on the success or failure of the remarkable sanitary measure now being brought before Parliament, in performance of the promise of the Conservative chief.

The new "Public Health Bill" is a giant in size, and it is to be hoped it will evidence in all its parts gigantic strength when put to the test of showing its effectiveness. Prepared and brought in by Mr. Solater Booth and Mr. Clare Read, the bill as it stands has no less than 388 clauses, and 156 pages are occupied by the printed draft. We do not purpose just now to discuss the details of this very voluminous bill—the task would be a laborious one. We will, however, take note of some matters while awaiting the results of Parliamentary and outside discussions that are sure to ensue, and which will have the effect of showing the degrees of strength and weakness contained in the measure.

In a general way, it may be stated, this Public Health Bill, like the Act of 1872, starts by establishing urban and rural sanitary districts under local boards, with the central authority of the Local Government Board as the controlling power. The local boards, as now, are invested with the powers of supervision of cleansing and scavenging, construction of sewers, inspection of houses, drain discharges, and a number of other sanitary duties connected with buildings and water supply. Natural running streams are not to be contaminated by pollution of any kind. No dwelling-houses are to be erected without special requirements. Public conveniences must be provided when necessary, and subjected to supervision, and all nuisances arising through defective management or machinery will have to be reported, and abatement will have to take place under severe penalties. If the local authorities do not perform the duties devolving upon them they will be held amenable to the central authority. Underground dwellings or cellars must not be inhabited without certain precautions, and lodging-houses are legislated for in thirteen clauses.

Here we would remark, why permit underground dwellings or cellars to be inhabited at all? Many of them are below the level of the street sewers, and cellars of all kinds when inhabited by human beings are nothing less than a danger and a nuisance. Among the thirteen clauses mentioned there is one which compels the landlord to give notice in any case of fever or other contagious disease upon his premises.

Several offensive trades are prohibited to be in proximity to any human habitation, and all nuisances which are defined in the bill are placed under summary jurisdiction. For the detection and destruction of unwholesome or putrid meat, and divers other unwholesome articles of food, fresh powers

are given. Coming to the section dealing with infectious diseases—which is an important one—we find there are some matters omitted which will need to be taken cognisance of. In the matter of infectious diseases we held that every case should be reported, and it should not only depend upon the discovery by the sanitary officer, but it would be well to consider whether the medical man attending an infectious case should not be obliged to report to the officers of the sanitary authority. The words "may direct" or "may report" allows a loophole for neglect, and it would be far better if the words "shall report" were substituted. Infected houses and bedding cannot be satisfactorily purified in many cases without the instrumentality of the local authority; and if the work is to be performed at the expense of the sanitary authority, there is need that all cases should be reported without fail. If the public are to be taxed for the preservation of the public health, they have a right to see that their taxmasters and representatives in the local boards properly perform their duty, and that no loophole should exist for an escape from that duty. The new bill says that clothing and other articles infected may be destroyed, and it allows for a fair compensation. This is only fair in the interest of the working-classes or the poor.

We now come to another provision which we have often descanted upon in these pages for some years back—the provision of ambulances for the sick, and the establishment of hospitals.

The Bill says that proper carriages are to be provided for the sick, hospitals established, and all persons going abroad in public with an infectious disease, or exposing themselves to the danger of the public, are to be punished. Again, to let lodgings or rooms in an inn or public place of resort, where a patient has been with an infectious disease, before such place has been properly cleansed, will be constituted an offence, as will also the making of any false statements upon the matter. But here, again, it says the offenders "may" be punished, instead of saying, he shall be punished. If an offender is fairly convicted of a flagrant offence, of which he was conscious, and committed with his eyes open, and in defiance of the law, there should be no escape for him. Under this Bill the Local Government Board is invested with new powers to prevent or arrest the spread of epidemics, and for the purpose of inspection leave is given for general entry into all places. There is a provision for the establishment of mortuaries, and the removal of dead bodies thereto pending interment.

The chief part of the remainder of subjects in this very large Bill comprises the regulation for streets, highways, public buildings, funds for the administration of the boards, officers, areas, powers, elections, and other requisite matters. We fear, that in glancing over the Bill we discover what must be reckoned defects, and that there is too much kindness, or perhaps we should say tender consideration shown to vested interests. We had hoped to see something tangible about the question of public graveyards and burials, for in view of the movement in favour of cremation, some advance should be made in this Government Bill to show the interment question is not lost sight of. Reforms are needed and are generally called for, and our burial customs with all their false and dangerous surroundings can-

not be any longer ignored. This new "Public Health Bill" is certainly an advanced step in sanitary legislation, but it will need to be perfected, and, no doubt, it will by the discussions that are certain to take place upon it. In the matter of human dwellings we need better conditions and far closer supervision than is pointed out, and the clauses regarding the water supply are weak.

The future water supply of the people is a most important question, for a great deal indeed depends upon its purity, and the source and channels of its supply. Healthy abodes will be impossible if proper provisions are not introduced in regard to foundations and drainage, and the escape of sewer gas. Speculators must be prevented from utilising foul "shoots" for the erection of human dwellings, and builders and others must be prevented from digging out the natural soil and establishing hot-beds of disease in the midst of our populous neighbourhoods. The Bill leaves too much to be achieved merely by the will of local authorities, instead of making what is absolutely needed for the preservation of the public health imperative.

The pollution of rivers is, we know, a vexed and difficult question to legislate upon all at once, but every year sees hundreds of new factories and mills established, and their foul refuse and waste is turned into the channels on which the public depend for their water supply for drinking and domestic purposes. Smoke-consuming furnaces have been established, and waste and nuisance consuming appliances will have to be provided, and there can be no insuperable obstacles in the way when science is brought to bear upon the matter. These islands will have to be mapped out into drainage areas, and pollution *pari passu* stopped at any cost; and in achieving these great and useful ends the interment question will also have to be discussed and satisfactorily settled.

We will watch with great interest the progress of the new Bill, for on its success will depend much of the fame or the failure that will stamp the present Conservative Government as a wise, powerful, and memorable one; or, on the other hand, as one which, though well intentioned, through misgiving or lack of boldness, allowed one of the grandest opportunities ever given to a Government for distinguishing itself for all time to slip by unavailed of and unutilised for the lasting glory and credit of the British Empire.

## THE LITERATURE OF GOTHIC ARCHITECTURE IN IRELAND.\*

THE object we have had in view, in our papers under the above heading, was not to supply a critical or analytical essay on the subject of Gothic Architecture in general, or even in particular, as regards Ireland. Our aim has been to furnish the views of the principal native writers who, before the close of the last century till the present, have touched upon the question, and whose opinions, from the positions they held, are entitled to be heard, and who, whether advocates of the Pointed style or not, may be fairly reckoned to have contributed to the literature of Gothic Architecture in Ireland. Some of these writers have been practical architects of both schools, some mere artists,

\* See ante, p. 50.

antiquaries, or archæologists, and others simple *litterateurs*; but among the artists and the antiquaries have been men who have bestowed considerable thought upon the subject of Gothic Architecture in this country, and their opinions, viewed in the light of their day, are entitled to every consideration.

Our countryman, James Barry, the great painter, was certainly no lover of the Gothic style, for he treats it with little less than open contempt. He undertook to trace it step by step in its early stages to its lowest and most debased type. Notwithstanding, his views have their value: here are some of them:—"The beginnings of that barbarous architecture called the Gothic is traceable in those buildings erected in Italy, even before the Arts were much declined, and long before the Goths had any footing there. The number of examples there are of this, in all the different parts of architecture, growing out of one another and increasing, have convinced me that the Gothic Architecture is nothing more than the architecture of the old Greeks and Romans, in the state of final corruption to which it had fallen. On the one hand, it abounded with affectation and caprice; on the other, it lost by the decay and annihilation of all other arts; so that when the Gothic king Theodoric had erected the churches and palaces at Rimini, Ravenna, Padua, Modena, &c., they were necessarily built in this detestable taste, for this simple reason, because there was no other in the country at the time; and these buildings, as they were rich, ornamented, and extremely unlike anything heathen, became the model of all other christian churches in Europe; so that this kind of architecture went northwards from Italy, instead of being transplanted from the north into Italy."

Further, Mr. Barry derives the clustering shafts of modern Gothic from the fashion introduced of fluting and counter-fluting the circumference of the large and corrupted Corinthian column, which had been erected without any regard to just proportions. The experiment of fluting was resorted to, in his opinion, to relieve the heaviness. He speaks of some of these flutes which he had inspected as being so deep that a man might hide in each recess.

Again, to the flat member between the flutes the further ornament of semicircular pilasters was attached, and with this addition the appearance was given that probably suggested the clustering column. He traces in the Corinthian capital equal breaks and corruptions arising from the fanciful and grotesque figures so often introduced, which he believes became a kind of precedent or standard for the innovation of succeeding artists. Mr. Barry as an artist travelled in Italy, and had opportunities for study; but his knowledge of architecture fades into insignificance compared with his taste and skill as an artist upon canvas.

Mr. Bell believes that, by the aid of the opinions expressed by Mr. Barry, we may trace the Pointed arch in its progress, grafting itself by degrees and piecemeal, as it were, upon the Saxon or the Lombardic style. The circular arch, he opines, thus gradually assumed the pointed form, but still retained its chevron ornaments and fretwork, and the massive pillar with its deep indentures became broken into the cluster of columns, which extended occasionally to a much greater height, according to the fancy of

succeeding architects. In fact, as we have said in a former paper, Mr. Bell considers Mr. Barry a most disinterested witness on the origin of Gothic architecture, and the whole tenor of his observations undermines every other theory, so much so that Mr. Bell believes there would be some degree of hardihood in denying the correctness of his conclusions.

In a paper on the Progress of Architecture in Ireland, James Gandon, the architect, of whom Dublin has reason to feel proud, speaks at some length on our early Romanesque structures, but he appears to adopt the views put forth by Dr. Ledwich on our ancient churches. Dr. Ledwich must be credited with being a scholar to a great extent; but as the late George Petrie, Dr. O'Donovan, and, quite recently, Mr. Brash, have examined and disproved several of his assertions and fallacies, Ledwich's opinions must be accepted merely at their worth. Ledwich, besides, was a mere antiquarian, and, though he displayed industry, he was most bold and reckless in assertion, and considerably prejudiced besides. Having formed a favourite theory, he twisted everything to assume the shape he needed it to take. He quoted extracts to illustrate his views of Irish architecture and Irish history; but since his time annals and documents have been brought to light and made known to the world, of which Ledwich had no cognisance. Ledwich's works are withal worthy of study, as he performed some useful antiquarian labour; but, from an architectural point of view, they are of little or no account, as the man had no professional knowledge of architecture. Besides his "*Antiquities of Ireland*," some papers of Ledwich's will be found in the *Archæologia*, and other writings of his may be traced in the pages of the *Anthologia Hibernica*.

In a paper by Mr. Essex, in the fourth volume of the *Archæologia*, an eulogium is pronounced on Gothic Architecture. Commenting upon this paper, James Gandon says that the author "appears so totally possessed by its beauty, proportion, and execution, as not to hesitate in affirming that, like the Grecian, it has its orders, and every order its peculiar proportions, founded on geometrical principles, and as capable of demonstration as the Grecian and Roman Architecture. In this assertion I consider Mr. Essex has suffered himself to be carried away by too much prejudice, and such opinion I consider to be altogether unfounded, as can be elucidated by an attentive inspection of the variety of Gothic buildings now in preservation."

Speaking of the opinions of Mr. Murphy, quoted in our preceding papers, Mr. Gandon remarks:—"Another writer on this subject gives his opinion that the Gothic architects assimilated the proportions of their buildings to those of the human body, and that the pyramidal form exists throughout the component parts of a Gothic edifice; and that from such an ordination none other but a pointed arch could be used. It may be here asked, What model was used for regulating the distribution and symmetry of such a building? for the Greeks and Romans worked by a model taken from the diameter of the columns divided into a certain number of parts, which served to regulate their proportions, together with that of the entablature and other parts appertaining to the order. I do not consider that any Gothic structure can admit such investigation, and the writer candidly owns that there never was a species

of architecture the proportions of which could be determined from the arch alone; and I do not consider the author of these ideas on the origin of Gothic Architecture has established any satisfactory principle (if any the early architects had) to regulate their designs."

We would bespeak attention and respect for the opinions of James Gandon, for his public buildings in Dublin must command admiration for their proportions, correct taste, and their constructional features, apart from or viewed together in connection with their ornamental ones. A master of the olden forms of architectural construction, and loving and wedding the types of the Classic school, yet he was no blind opponent of the disciples of the Gothic school, but was ready, as far as his common sense and the light of his day allowed him, to appreciate whatever was good in Gothic design. In a note appended to his paper, from which we have already quoted, Mr. Gandon observes:—"There are very few castles at present remaining in Ireland of any considerable magnitude, when compared with those of England. It must be allowed that at the time of Henry VIII., when the cathedrals, religious houses, together with the castles of the barons, embosomed in their woods, existed in all their Gothic pride, England exhibited a scenery that must have afforded surprise, and would have delighted even a Greek or Roman architect of the Augustan age: the lofty and towering spires of the cathedrals uniting to a peculiar style, such a variety of fantastic ornament, executed with materials so slight in substance, yet possessing such strength, combined with such great statical knowledge in the art of [stone] cutting and the formation of masonry, as in the arches, &c., to support the incumbent weights. On the other hand, we may observe that the Greek and Roman architects, with all their refinement, knowledge, and taste, were frequently obliged to have recourse to enormous blocks of stone or marble, added to such a thickness of wall as to form artificial works in the construction of their edifices in order to resist the injuries of time, and hand them down to posterity. The present generation, particularly the Society of Antiquaries, sensible of the genius shown in many of these works, are investigating with the discrimination they merit, their several beauties; while the painter of landscape seeks every occasion to add our ruined Gothic buildings to embellish the glowing colour of his canvas. The many excellent engravings of these subjects will hand down to posterity ruins daily crumbling into dust, and will show that if our ancestors had not that pure taste of Greece or Rome, yet they had one more suited to the times, though often wild and extravagant, yet beautiful, and, in some instances, both in the design and construction, sublime."

James Gandon died in 1823, but the active practice of his profession had ceased in the first years of the present century. In 1769, when residing in London, he competed with upwards of fifty others for the work of the Royal Exchange (now City Hall). He carried off the second premium, Thomas Cooley—another architect who has added to the embellishment of our city—obtaining the first. The twenty years preceding the close of the last century were the most active and remarkable of Mr. Gandon's career. He died before the spirit of the "Gothic Revival"

walked the land; and a contemporary architect and a native, who, though he lived but a very few years longer than Gandon, yet his practice being mostly confined within the first thirty years of the present century, was destined to be the pioneer of the revived style.

In our next paper we will take note of some further views expressed by James Gandon upon Gothic Architecture, and his opinions upon the views entertained by others—architects, antiquaries, and outsiders—who have written upon the subject.

#### DUBLIN PORT AND DOCKS IMPROVEMENT.

In the report of the Dublin Port and Docks Board for last year, including a statement of receipts and expenditure, as also the engineer's report, there is some useful information which deserves to be more fully known. The secretary's (Mr. Proud) report shows that the aggregate registered tonnage that entered the port of Dublin during last year was 1,563,847 tons, against 1,632,160 tons in the preceding year, the receipts of which were £47,223, or £2,557 13s. 7d. less than in 1873. A decrease of 6,949 tons is also to be observed in steamers from Continental ports, and 6,545 tons from sailing vessels. The coal trade shows a decrease of 47,364 and timber 8,778 tons. Vessels with sugar show an increase of 469 tons, and with corn and flour 2,495. Steam coasters increased 10,199 tons, whereas sailing coasters fell off 12,768 tons. We do not like to observe the decrease in coals and timber, and we would like to know was the falling off in the imports in coal to be accounted for by the native supply taking its place.

The South Quay improvements consist in a length of nearly 450 feet of the western extension of deep-water berths at Sir John Rogerson's Quay constructed within the last year. This addition makes a total length of about 2,050 feet of berths, having a depth of 22 feet at low water on the south side of the Liffey. The contractor was paid during the year £25,171 0s. 5d., or a total since the commencement of the works in 1870 of £114,888 12s. 10d.

The North Wall Quay extension comprises a length of 1,114 feet of the river side wall, with a sufficient roadway to form discharging berths for three vessels. The foundation blocks for the quay wall have been laid for a length of about 90 feet on the north side, at such a distance as to form a roadway or quay of 250 feet wide when finished. The sum of £14,564 4s. 6d. has been expended on this work during the late year, or total expenditure to the present of £51,652 7s.

The North Wall Quay deepening works for steam berths comprises the re-building of the quay wall east of the entrance to the Royal Canal for a length of 890 feet, finished, at which there is a depth of 15 feet at low water. West of the canal a length of about 550 feet of quay wall is completed, and sheds at both sections for the needs of the cross-Channel trade are being erected. The sum of £21,977 7s. 8d. has been paid on account of those works within the year, or a total expenditure of £57,086 14s. 2d.

East of the entrance to the Graving Dock a timber wharf 160 feet in length has been constructed, at a cost of £700. On Essex Bridge, lately opened for traffic, the sum of £16,250 4s. 4d. was expended during the

year, which includes payments on account of culverts for the proposed Main Drainage. *Re* the Custom House Docks, the sum of £557 2s. 5d. balances were paid on account of new whiskey vaults and strengthening grain floor, making a total expenditure of £18,419 1s. 5d. on account of new works and improvements on these premises since the board entered into possession in 1869. In the way of loan the total amount advanced on the security of the mortgage bonds of the board to the 31st of last December was £228,550.

The engineer of the board, Mr. Bindon B. Stoney, in his report gives some further details anent the above works. The quay wall for the western extension along Sir John Rogerson's Quay is reported to be finished to a coping level for a length of 428 feet, and the dam in front removed for a length of 800 feet. At the north quay (deepening steam berths, the eastern section of which is completed) the foundations have been built for a 20-ton crane close to the Royal Canal. Two hundred and fifty feet of the second berth of the western section is also finished, and now occupied by the trading steamers. At the North Quay extension the superstructure of the south, or river, face is built to the length of 406 feet, making, with that already completed, 1,114 feet, as aforesaid, and blocks for 92 feet of the north or inner face have been laid.

Concerning Essex Bridge (already alluded to) the engineer reports that, though unfinished, it was opened to public use on the 1st of October last, and within 15½ months after the old bridge was closed, but the erection of the iron-work has since been in progress. The shed on Sir John's Quay east of Lime-street was taken down and re-erected opposite the stores of Messrs. Tedcastle and Co. The new shed opposite the stores of the City of Dublin Steam Packet Company have been extended for a length of 270 feet, making a total of 435 feet, and a new shed opposite the stores of the London and North Western Railway Company has been roofed for a length of nearly 200 feet. Two short tramways have been constructed for the steam crane belonging to the City of Dublin Steam Packet Company. Of lighthouse work, two large blocks were laid in February last year on the eastern slope of Poolbeg.

It appears by the West Quay Walls and Bridges Account that the sum of £6,708 13s. 2d. was received from the Main Drainage Committee as payment for the cost of the culverts at Essex Bridge. The Port and Docks Board paid the Corporation the sum of £636 11s. 2d. for paving and widening the North Quay.

The following commendable items of expenditure by the board are worthy of note:—In pensions and donations to workmen and widows, £629 1s. 9d.; annual subscriptions to hospitals, £48 6s.; ditto to Shipwrecked Mariners' Society, £25; ditto to National Lifeboat Institution, £75; ditto to Sailors' Home, £20; ditto to Sailors' Reading-room, Kingstown, £5; to the board's fund for sick relief, £100; making a total of pensions and charities of £902 7s. 9d. for 1874. The medical attendant of the workmen employed by the board, Mr. Edward Hamilton, M.D., received the sum of £100. This is a small sum, considering the number of workmen in the service of the board, and the dangers to which they are exposed through work and weather.

It is not necessary for us to give an

analysis of the income and expenditure of the board, or to particularise payments in the way of salaries, or assistance, or superannuation. On the whole, considering the varied nature of the trusts of the board and the works supervised by their officers, we think the statement of their accounts presented in the report before us is a creditable one, and we would very much like to see other public boards, particularly our Corporation, coming before the public with a statement of accounts as little open to cavil as that of the Dublin Port and Docks Board.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At a meeting held on the date of our last issue, under the presidency of Sir Gilbert Scott, R.A., at the commencement of the proceedings the secretary remarked that it was no doubt gratifying to the members to hear that Mr. Wood, whose paper on "The Temple of Diana at Ephesus," was read a fortnight previously, had received a pension of £200 a-year from the Government, in consideration of his excavations, discoveries, and other labours. The president, in alluding to the death of Professor Willis, the learned and acute antiquary, and writer on Gothic architecture and other subjects, enumerated his principal works, and paid a graceful tribute to his memory. Mr. T. H. Wyatt also bore testimony to the worth of the deceased, and the secretary was instructed to send a letter of condolence and sympathy, on the part of the Institute, to the late Professor's relatives. Mr. G. T. Robinson, contributing visitor, then read a paper "On Certain New or Revived Processes in Decorative Art." The paper, which was an instructive and interesting one, was followed by a discussion, in which Mr. Aitcheson, Mr. Crace, Mr. W. White, Mr. Phené Spiers, Mr. Morris, and Mr. Jennings took part. At the conclusion of the discussion the president expressed the great pleasure he felt at seeing brought before him a number of new modes of decoration, and some old processes revived. Some of the speakers had referred to marble as a revived system. He had seen marble used in old buildings in Italy, and also in English buildings; the work was most delicate, and had stood very well. With regard to the hangings, the subject offered a great deal that was worth their consideration; while, on the other hand, there was a danger of cheapening their ideas of things, and producing what was and ought to be really valuable and high-class work by very cheap means, and, to use the expression of an enemy, "making all things common and unclean."

#### THE GOUGH MEMORIAL.

In respect to this memorial, it was resolved at a late meeting of the committee, that, in conjunction with the executors of the late John Henry Foley, the three artists—Mr. Brock, Mr. Birch, and Mr. Dewick—named in Mr. Foley's will to complete his unfinished works, be authorised to perfect and erect, as soon as possible, the Gough equestrian memorial; Mr. G. F. Teniswood, the acting executor of the said John Henry Foley, having undertaken to have same finished and erected within two years from this date, upon the terms agreed to with the late Mr. Foley. And it was further resolved that Edward Cane and Samuel Frederick Adair, Esqrs., having agreed to act as trustees of the fund for erecting such memorial, in the room of the late Sir Maziere Brady, Bart., and the Right Hon. Abraham Brewster, the Right Hon. Lord Strathnairn and Sir Joseph Napier, Bart., the surviving trustees of such fund, be requested to have same transferred to their names, in conjunction with those of the newly-appointed trustees.

PUBLIC RIGHTS AND PUBLIC  
NUISANCES.

## TWENTY-FIFTH ARTICLE.

THE ADULTERATION OF TEA AND COFFEE, ETC.  
(continued).

ALMOST every week at present prosecutions are witnessed, instituted against the vendors of adulterated teas. The profits on tea are far greater than what might be imagined, and of late years a number of people who might be termed commercial travellers or traders have taken to the selling of teas through the country districts of the three kingdoms. Some of these men have made a handsome income, and drive their traps in style. The tea they vended was at best but sorry trash, but it was quite equal to much of what the poor were and are accustomed to buy in small grocers' and huxters' shops. All very cheap teas are villanous mixtures, and often the much higher priced teas are little better. In London there are several noted tea-dealers who have acquired a good name for selling fair samples of teas. Each of those firms have their own select constituencies, and their customers are ready to swear that no such teas are to be had in the city as those supplied by their respective firms with which they severally deal. Taste and fancy often go hand in hand, and if the members of a certain household are for any length of time in the habit of using the teas of a certain firm they cannot be got to believe that such a firm would impose upon them.

Noted tea-dealers are in the habit of mixing their teas to a great extent, each large firm having a peculiar modus of its own, hence the flavour of tea purchased at one large and so-called respectable house differs from that sold at another. There are one or two London firms who have got a name for selling good teas, and who are said to "pick their teas." If this means that they go to the trouble of overhauling their different samples, and selecting by picking the good leaves from the bad, we doubt it. Their picking process is rather the selection of different kinds for what is called a judicious mixture. Dr. Wanklyn states that on making a chemical examination of tea, one of the points which first attracts the attention of the chemist is the high proportion of ash which tea leaves contain. From determinations made in his own laboratory, he found the percentage of ash in common tea was 5.63; Civil Service tea, 5.56; Horniman's tea, 5.99; Mandarin's tea (eight shillings per pound), 5.3; Orange Pekoe (five shillings per pound), 5.84; another kind, 6.06; green tea, (four shillings and six-pence per pound), 6.86; making an average of 5.75. A fine specimen of tea received direct from the growers yielded 5.63 per cent. of ash. Tea directly imported in chests from China is often inferior enough, and mixed and made up to suit a cheap market. The ordinary tea of commerce is frequently adulterated with mineral matter, sand and metallic substances. These adulterations can, of course, to a great extent be discovered by a careful analysis, but the poor have but seldom the opportunity of putting the law in motion for the punishment of the adulterators. It behoves, therefore, our urban and rural sanitary boards to see, whenever a well-authenticated instance of adulteration is brought before them, that the public analyst will at once be instructed to investigate the matter. It will also be the duty of the sanitary officer or inspector of nuisances, under the authority of the medical officer of health, to purchase occasionally in different parts of his district, samples of teas, coffee, and sugar, for the purpose of immediate analysis so that the poor may be protected. The public analyst detects the amount of adulteration by making a determination of the ash in the sample.

In a sample examined by Dr. Wanklyn, the tea yielded 14.5 per cent. of ash, of which about 9 consisted of lumps of sand. By examination of the ash, a judgment can be

formed of the quality of the tea, whether fine or of inferior quality — much potash and much phosphoric acid with little lime and silica denoting excellent tea; the contrary, inferior. Tea that is suspected of being used once and dried, will be detected by a determination of the ash which will be found deficient in potash; low potash and high lime in the ash may be taken as denoting suspicious signs. There are, however, other methods of detection in the hands of the analyst; Zöller found 100 parts (by weight) of tea gave 86.26 parts of dry solid extract, soluble in water. Tea leaves are stated to yield to water more than a third of their weight. The amount of the extract will therefore be a good test whether the specimen of tea is a spent tea or a genuine one. The theine from the tea plant and the coffeine from the coffee plant are the same chemical substance. The fact that coffeine forms the essential principle of three substances used by widely different nations, is accounted a curious one, showing that the craving which it satisfies is as natural as universal.

As an article of diet, coffee or tea appears to exercise an influence in retarding the waste in the tissues of the body. Its exact effect on the human system has not, however, been fully studied or determined. Good tea, not too strong or too constantly used, is without doubt a nourishing substance; and, if it does not add greatly to the strength, it certainly exhilarates and satisfies a natural craving without doing any positive injury.

Bad and spent teas, highly adulterated or made up by being faced with mineral substances, must be most injurious to the system when partaken of constantly by the poor, who have not a sufficiency of nourishing animal diet. Theine is said to exist in the tea plant, not in a free state, but as a tannate of theine; while in coffee it appears combined with another acid, viz., chlorogenic acid.

In our former paper we gave a list of the adulterants of tea. Those commonly used in coffee are: chicory, sawdust, acorns, grain, roasted roots of various kinds, lentil seeds, groats, tan, baked liver, burnt sugar, Venetian red. With respect to chicory, it is allowed by the Act, if the mixture is labelled as such; but within the past few weeks several parties have been summoned for selling coffee which, on examination, proved to be entirely chicory. A microscopic examination alone will detect many mixtures in coffee, such as starch, chicory, animal fats, and like substances. Adulterated coffee sinks, and rapidly colours the water brown; good coffee will not cake when pinched between the fingers, and if a small quantity be thrown on cold water it floats, only slightly tinging the water. Coffee, when good, contains about 1.3 per cent. of sugar, with less than 1 per cent. of ash. The ash should dissolve completely when submitted for some time to hydrochloric acid. If there is a residue, it will indicate the presence of silica, which is not found in pure coffee, but will be found in the ash of the majority of the bodies used as adulterants.

Similar adulterants are used for cocoa as those mentioned in connection with coffee, viz.—fats, starches, cocoa husks, Venetian red, bole, and chicory. Good cocoa should not, as is erroneously believed, have a sweet taste or a red colour. A test is here given from one of our manuals of public health:—"As much cocoa as can be piled up on a threepenny piece, when placed on a square of platinum foil, and strongly heated by a spirit lamp, should burn almost completely away, leaving less than 3 per cent. of a reddish-coloured ash." The same remarks are stated to apply to chocolate.

Were we to venture in advising the poor, who are obliged to purchase their tea and coffee from small dealers and in small quantities, we would say, Buy little of it, and drink less of it; and, if you have reason for suspecting the article is really bad, unite with your neighbours in drawing the attention of the sanitary inspector to the matter, that an analysis may be made, and the tradesman warned or punished, if needs be. We have no desire to see the law enforced

with any undue severity against the small trader, while the large one comes off scot free. The large trader is often the principal offender, for he keeps in stock an inferior article to meet the cheap retail market; and the small retailer, being allowed but a small margin of profit, cheats his poor customers in return by mixing one bad mixture with another worse one. Having to weigh out tea in ounces and half ounces, the small huxter trader seldom or ever turns the scale, and, when he does so, it is ten chances to one his weights are light, or the apparatus of his scales defective.

The late commission appointed to report upon the working of the Adulteration Acts have, we fear, done more harm than good; and if their recommendations are acted upon in any new piece of legislation, the measure that will result will be a disastrous one. The vendor of an adulterated article should be punished as well as the producer or importer; but if the producer or manufacturer can be reached, it is he that in the first instance should suffer. Let adulteration be stopped at its source by constant vigilance and superintendence, or an examination of the produced article, and the evil will be lessened. If it is proved to have been doctored after leaving the hands of the producer, the vendor must be held amenable, for he must have cognisance of the adulteration, or a knowledge that the article is inferior or not by the price paid for it. We will not assert that all small traders in general are conscious of the quality of the article they are selling, but the majority are so. Every means should be taken by the legislature to put a stop to adulteration, for adulteration is a fraud, and may not only lead to robbery of the many, but to their murder, by a system of slow but certain poisoning.

THE SAND-BLAST  
AND ITS ADAPTATION TO  
INDUSTRIAL PURPOSES.\*

(Concluded from page 63.)

THE principal points to be attended to in order to obtain the best results in economy of power and time in working with the sand-blast are—first, to get an impelling jet of great velocity; second, to feed the sand regularly and in such a manner that it shall acquire as nearly as possible the velocity of the impelling jet; third, to direct the jet of sand upon the desired spot, without wasting its force in wearing away the nozzle-tube; and fourth, to provide free escape for the expended steam and sand, so as to avoid interference of the outgoing sand with that which is being driven forward.

Where only a small quantity of material is to be cut or ground away by the sand-blast from the surface of a hard substance, and where only a moderate velocity of jet is required, a blast of air (produced by a rotary fan) is found to be convenient. This method is used for grinding or depolishing glass, china, or pottery, either over their entire surfaces or for the production of ornamental designs. In engraving designs, air is more convenient than steam for the impelling jet, because with air the sand keeps dry and rebounds, leaving the pattern clear; but with steam the sand becomes damp, and is apt to adhere to the fine lines and corners and clog them. The sand being fed into the air jet by falling from a column of sufficient height, it is carried along by the air in a tube or close trunk, and directed upon the glass, which is held or moved opposite the mouth of the trunk; the sand-jet thus cuts or stars the surface of the glass wherever it strikes it.

The air current from the fan (having a pressure of about four inches of water) is brought in by a trunk, of about two square feet sectional area, and descends through the narrow vertical slot, of about one inch in width, from the bottom of which it issues

\* By William E. Newton. Read at meeting of Society of Arts, February 10th, 1875.



with a velocity proportioned to the pressure of the air. Into the upper end of the air slot, the sand is evenly fed from the sand-box above by means of the sand slot, of about half an inch in width, the lower end of which is closed by an iron plate perforated with holes about a quarter of an inch in diameter and half an inch apart, so as to supply from 15 to 20 cubic inches of sand per minute for each square inch of cross section of the air slot. In passing down the air slot the sand acquires a velocity proportioned to that of the air jet, and strikes upon the plates of glass, which are made to traverse across underneath the mouth of the slot. The plates of glass are carried upon a set of indiarubber belts, which travel at the rate of about eight inches per minute, so that each part of the glass is exposed to the action of the sand-blast for about six or eight seconds. After striking the glass, the air and sand pass away at the sides into the large settling chamber below, where they lose their velocity, and the sand settles to the bottom, while the air escapes at the aperture, or returns to the fan. To diminish the escape of dust and sand into the external atmosphere, indiarubber flaps are provided, which close with a slight elastic pressure upon the glass passing through. The pressure of the blast holds the sheets of glass down upon the belts which carry them. The sand from the bottom of the settling chamber is raised by an elevator into the sand box at top, and is used over again repeatedly, until it becomes too fine.

For cutting a design upon glass, the covering stencil plate must be of a strength and durability proportioned to the thickness to be cut away. Toughness and elasticity and the absence of brittleness appear to be the qualities needed for resisting the cutting action of the sand. Indiarubber (particularly when vulcanised) possesses the desired properties in an eminent degree; parchment and parchment paper also possess considerable durability. Stencil plates made of paper or thread are rendered more durable by covering them with a tough or elastic varnish. A design can either be drawn on the glass with a composition applied by a brush, or the glass can be covered all over with a preparation of gelatine or glue, and the design cut through the protecting coat when dry, so as to expose certain parts of the glass to the action of the sand-blast. A layer of wax resists a sand-blast having a pressure of up to five or six inches of water. A film of bichromatised gelatine produced by photographic processes is capable of resisting the action of a blast of the same fine sand, during a sufficient time to allow of the exposed portions of the glass being cut or engraved by the sand-blast; and photographic pictures have been engraved by this means. The finer the sand used and the lower the pressure of the blast, the finer is the grain of the depolished surface, and the weaker and more delicate may be the texture of the covering substances used to produce the design. Any of the processes by which a design can be produced or transferred in a sufficiently tough medium may be used to prepare a surface for being engraved by the sand-blast. Many natural objects, such as plants, leaves, &c., which can be fastened flat upon a surface, offer sufficient resistance to a blast of fine sand to admit of their outline being thus engraved.

When wood is subjected to a sand-blast of moderate velocity, the softer and more brittle portions are more rapidly and deeply cut away than the others, and the grain of the wood and the hard lines and knots are thus brought out in relief.

When the sand-blast at a moderate velocity is directed upon a metallic surface it removes but little of the metal, but the grains of sand make innumerable small indentations in the surface, and produce a frosted or deadened appearance; and by means of stencil plates any design may thus be engraved on metallic surfaces. It will be evident from the above explanation that a special peculiarity of the process is, that not only can many kinds of

work which are ordinarily done by hand be produced by it automatically, and at a very trifling cost, but other things can also be done which cannot otherwise be produced at all at anything like a reasonable cost. As an example of this kind, inscriptions can be cut in granite with raised polished letters; the cost of this by hand work would be very great, but it is done by the sand-blast process with great facility and expedition. The mode of executing this work is by first polishing the surface of the stone, and then cementing upon it metal letters forming the intended inscription, and subjecting the whole to the sand-blast; the surface of the stone is by that means cut away uniformly wherever it is not protected by the metal letters; and on removing the metal templates the inscription will be left in relief, with letters polished on the face and finished with fine sharp edges. The operation is effected with a single steam jet moved backwards and forwards over the work at a rate of about 20 feet per minute, and the stone is traversed slowly at the same time in a transverse direction, until the jet has passed once over the surface; the cutting of the specimen shown, 10 inches square and 3-17ths inch depth of cut, required only eight minutes with a pressure of 60 lbs. steam, and it was done with the steam jet exhibited with  $\frac{5}{8}$  inch bore of tube.

The pierced ornament marble panel exhibited was cut at two operations by placing a thin iron template on one face of the marble, and sinking the pattern half through its thickness by means of the sand-blast; the marble was then turned over and the template fitted upon the other face exactly corresponding in position with the first side, and then subjected to the sand-blast until cut completely through. A perforated design is thus formed, having the edges all regularly chamfered from each face, on account of the tapering form of the holes cut by the sand-blast. The specimen of marble shown, of about half a square foot area and  $\frac{1}{4}$  inch thick, was completed in thirty minutes with a steam jet of 50 lbs. pressure, and a similar specimen cut in sandstone was completed in only ten minutes. Another specimen shows a similar design cut in glass to a depth of  $\frac{1}{4}$  inch.

When the material operated upon is not of uniform hardness, as in the case of granite (which is an agglomeration of substances of different degrees of hardness), the bottom of the hollows are not cut level, and the harder portions, such as the quartz crystals, are left slightly projecting above the ground. These may be dressed down by hand to finish the work; but in uniform materials, such as marble and slates, the whole is left neatly finished by the sand-blast process. Sunk panels in wood carving are readily produced by this process, but the time required is about twice as long in oak as in marble, on account of the wood having a certain amount of elasticity, which softens the effect of the impact of the grains of sand. In operating upon oak, the greater hardness of the grain of the wood causes the bottom of the hollows to be left uneven; but with boxwood the work is left with a level surface, and the specimens exhibited show a beautiful finish.

By using a higher pressure of steam jet the hardest substances can be cut, as shown by the hole cut in the specimen exhibited of corundum, a mineral twice as hard as granite; and even hardened steel can be cut, as shown by the specimen of a file 5-6ths inch thick, having a slot through it 5 inches long and 2-8ths inch wide, which was cut in about thirty minutes.

## LARGE AND SMALL FARMS.

### THIRD ARTICLE.

In the first article on this subject (see IRISH BUILDER, February 1st, 1875) it was suggested that the land should be rented for a term of years, not bought; but this would prevent land proprietors (who have land which may be required) taking any part in the speculation, because, becoming tenants

the smaller interest is absorbed in the greater and they might lose both rent and land. There are, however, persons who will willingly sell and take the whole or a portion thereof in fully paid up shares. The large agricultural implement makers (who will be largely benefited by the impetus which will be given to their manufacture) should become shareholders, and induce their friends to join in such undertakings.

The many letters which are daily seen in the papers on the improvement of waste land and reclamation of slobs and foreshores, show that people's ideas are becoming alive to this subject, and the article in the IRISH BUILDER of March 1st, 1875, on Waste Land Reclamation, is a proof of this. Many people do not, however, agree in Mr. Brett's plan of purchasing the land; this has already been tried in Ireland. When single individuals undertake improvements, the land either remains in a state of pasture or shortly is brought into grazing, not kept in cultivation by the employment of the labourer for the greater production of food and manure than house feeding.

Mr. Rintoul suggested the cultivation of the foreshores through companies. Mr. Nimmo's idea that improvement of land is not of the nature to be carried out by a company, is but a theory. It is perfectly true that all great works executed by companies could have been more cheaply made by private individuals; but few individuals could be found to embark perhaps the whole of their property in one undertaking, with the danger of a strike to render his outlay useless. Companies are, therefore, the only parties who could undertake such works with safety and, it is believed, with profit.

It is to be hoped that some persons may be induced to embark in such a speculation, for it will be a precursor society, and probably many will arise in these islands. More employment will be created, emigration will be checked, cheap food in large quantities created, better and more healthy residences provided, and the conglomeration of workmen in large towns will not be required, while labourers will be better educated and paid.

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## BOOKS RECEIVED.

*The Patent Question in 1873.—The Chancellor's Bill and the Exigencies of Foreign Competition, &c. With suggestions as to Copyright.* By R. A. Macfie. London: Longmans, Green, and Co.

THIS pamphlet is a most able and instructive piece of reasoning on the anomalies and defects of our present Patent Law system. The whole question is thoroughly discussed, and in support of the views of the writer a large amount of independent and influential opinion is adduced, all clearly shewing the mischiefs that arise and are likely to continue, to the detriment of the British nation, if our Patent Laws continue unreformed. It must be conceded that the injurious effects of the Patent Laws in this country in preserving certain monopolies, favours foreign competition, keeps home products at a high price, and enables the foreign manufacturer to often beat us in our own market. At first sight the Patent system looks passably fair. A reward is certainly due to him who improves our manufactures; a certain protection appears reasonable to him who has invested his capital in developing an invention; and again, there would appear to be need of an inducement held out to those who possess the ability, or desire to rise above their fellows in whatever sphere their lot was cast. But can the present administration of the Patent Laws be justified solely on these grounds? and are the conditions fulfilled? We reply, They are not.

The present extortionate cost of patents, amounting to £200, including agency, as well as the £50 which has to be paid within the first six months, present a formidable barrier to the obtainment of patents by a class who ought to have the first claims, for it is

mostly through skilled artisans that many of our inventions are perfected if not produced. Among skilled workmen are many original inventors, but they have been forced to part with their inventions from their inability to obtain patents, and others have reaped the reward of their years of toil. The intended bill of the Lord Chancellor had some good points, but we fear it would be found unworkable. Now, while we would like to protect and assist all producers of really useful inventions, as far as it would be compatible with the welfare of the nation, we hold that our Patent Laws, as at present administered, are a piece of rank injustice; and if these laws are not remodelled, and the evils that arise from their action mitigated, a time will soon come when these laws will have to be altogether swept away. If we remember aright, we think that Benjamin Franklin once wrote, that all inventions should be for the benefit of mankind in general, and that no injurious monopoly should be permitted to the injury of any part of the population. A very indifferent invention or process may be protected by a patent under the present system; and if a skilful manager, foreman, or operative mechanic, who, seeing its defects, is able to improve upon it, and produce a piece of mechanism with double the advantage, he or they, or one and all, are debarred from doing so. Should any one attempt to improve upon the bungling performances of others, the Patent Laws are applied to crush and ruin that man. Mediocrity is thus protected, huge monopolies preserved, and high prices maintained, that the few may be enriched, and the many, perhaps, beggared.

The pamphlet under notice is a useful contribution to the literature of the Patent Laws, its history, working, and tendency; and to patentees and opponents to patents, and the professional and commercial public at large, we can recommend its perusal. If we should write one more sentence it will be to register our opinion that, the Patent Laws should be at once remodelled or abolished.

#### THE SHANNON DRAINAGE.

At a meeting held at Athlone Court-house, two of the commissioners being present, Colonel M'Kerlie and Mr. Lefanu, objections were made by a number of landowners against the proposed taxation for the Shannon drainage works.

Mr. Lynam, C.E., of Ballinasloe, explained the circumstances of each case, the nature of the soil and herbage, the extent and duration of the flooding, and the relativeness of the valuation. The inquiry was further postponed, but in the meantime further meetings were held in other districts. There are a number of objections duly lodged, it is stated, by the landowners, not against the proposed drainage, but against the proposed taxation, as being a third or a half too high. The owners also object to the proposed taking away of the winter floods, and both they and their tenants think that these floods enrich their meadow lands.

Intelligence has been received at the Irish Office that the Government measure of last session for draining the Upper Shannon has failed, the requisite majority of landowners not having voted its adoption.

#### THE LATE PROFESSOR WILLIS.

THIS distinguished antiquary and writer on Gothic architecture, whose death took place on the 20th ult., was born in London in 1800. Besides his valuable works on architecture and archæology, he was the author of useful handbooks on the principles of mechanism, one of which a treatise on the teeth of wheels. In these works he evidenced considerable scientific knowledge. In 1835 his first work was published, "Essay on Gothic Architecture," chiefly in relation to the Continent. He wrote an excellent monograph of Canterbury Cathedral at a later period, and papers from his pen followed on York, and

on Winchester, and Glastonbury Abbeys, and other ecclesiastical buildings. His "Essay Elucidating the Architectural Nomenclature of the Middle Ages" was published in 1849. To these may be added his "History of the Middle Ages," "Architectural History of the Holy Sepulchre." Some papers on "Mechanics" and "Acoustics" written by him will be found in the Transactions of the Cambridge Philosophical Society. The late Professor was a most able lecturer, and it is stated by those who often listened to him that it was a delight to hear him. He was educated at Caius College, and was elected to the Jacksonian Professorship in 1807. He was, in the course of his career, member of many learned societies, and president sometimes. Sir Gilbert Scott's opinion of him, expressed at a meeting of the Institute of Architects, was that they never had had a man with such qualities of mind, and with such a remarkable breadth of view regarding the architectural profession.

#### CIVIC LYRICS.—No. LXXXI.

##### A PLEA FOR CREMATION.

How long will we poison the living,  
How long will we bury our dead  
In cities and towns, and be giving  
More strength to the evils we dread?  
The graveyard, 'tis said, is God's Acre;  
But God never meant it to be  
A plague-spot, a hot-bed, and maker  
Of Pestilence that we now see.

Respect for the dead, it is granted—  
Respect, whether pauper or lord;  
But with respect, Wisdom is wanted,  
And Justice, with balance and sword.  
Strict justice deal out to the living,  
With all due respect for the dead,  
And health you'll be found to be giving,  
And man will have nothing to dread!

Cremation or Burial?—the cartel  
Has now to the nation gone forth;  
There's nothing in it that need startle,  
Or make us think less of our worth.  
Both Pagans and Christians, tho' mourning  
Their loved ones, and kissing the rod,  
They gave up their bodies to burning,  
With faith in their gods and our God!

CIVIL.

#### THE HEALTH OF DUBLIN.

THE deaths in Dublin, in the registration district, for the week ending 6th of March, represented an annual mortality of 85 in every 1,000. The births were 107 boys and 85 girls, and the deaths 106 males and 107 females. Of the 20 registered deaths from zymotic diseases, 7 were caused by fever (2 typhus, and 5 typhoid or enteric fever), 4 by scarlet fever, 1 each by measles and diphtheria, 3 by croup, and 2 by influenza. Forty-two of the persons whose deaths were registered were under five years of age, and 62 were aged sixty and upwards, including a woman stated to have been aged 97 years. The number of deaths from all causes was 218, the average number in the corresponding week for the last ten years was 179. Without comparing a particular week with another week, but looking upon the general mortality in Dublin of late, we must say it is very high, and we fear it will continue so until the sanitary condition of the city is greatly improved. The winter, however, has been a rather severe one.

#### PROPOSED COURT-HOUSE AT KINGSTOWN.

SINCE our last issue, at the usual Presentment Sessions at the Court-house, Kilmaham, an application was made for a presentment of £2,500 to build a new court-house at Kingstown. The Commissioners of the township have no power to expend the rates in the erection of the proposed building, hence the application. The advocates of the measure advanced several arguments in favour of the proposal, and of the benefit likely to accrue to Kingstown if the building was erected. Mr. Frederick Stokes, J.P.—who, as one of the representatives of Rath-

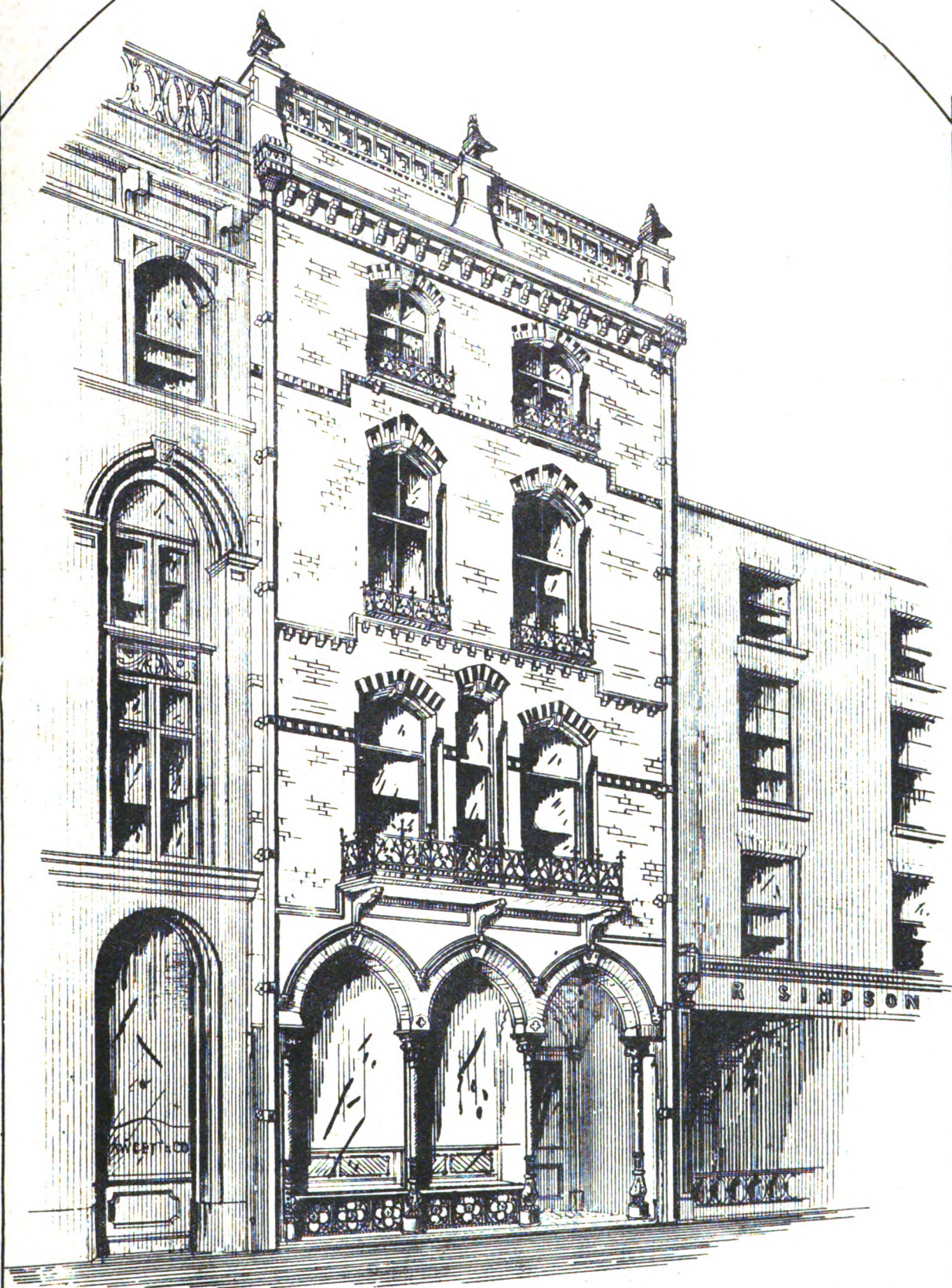
mines township, was among the opponents of the measure—stated that if the application was granted his district would be called upon to pay £300 or £400 as its proportion of the outlay. In the course of his remarks he stated that it was a patent fact that the Kingstown Commissioners had expended several thousands of pounds in law costs, and that they now wished to give their constituents increased facilities for litigation. Mr. Crosthwaite, on behalf of Kingstown, considered that as his township paid the county £2,000 a-year, they had a right to the sum they asked, to enable them to carry out a pressing improvement. After a lengthened discussion by the parties on either side, a show of hands was taken, when six voted for, and twenty against, the granting of the presentment. The architect, we suppose, will have to wait for his commission.

#### THE MAIN DRAINAGE DEAD-LOCK.

THE meeting of the citizens and ratepayers on Wednesday last affords a serious commentary upon municipal rule in Dublin. Whether our civic magnates feel humiliated we cannot say: the probability is that they have become so hardened and audacious in their evil ways for years, that there is no degradation that would make them blush with shame. As citizens, we confess we feel humiliated at the position our city stands in before Great Britain on the head of this long-pending and disgracefully-managed Main Drainage scheme. The citizens could not, with honour to themselves, come to any other conclusion than that they have arrived at; they have unanimously declared that the scheme of 1871 should be abandoned. The trebly-revised scheme is an insult to common sense, and a libel on the character of our city and its people, and the engineering capacity with which our professional men have been credited. After already costing several thousands on the head of Parliamentary expenses, deputations, reports, salaries for a bogus staff, and an endless variety of other expenses, the city is in a worse position than when the project was first started. Little or nothing has been done; and now half-a-million would be required, and perhaps more, if this scheme was entered upon. The revised scheme would not meet the difficulty, either on the score of expense or as a sanitary measure.

Months ago we, in common with other professional contemporaries across the Channel, exposed the un-scientific and outrageous engineering features of this revised scheme, and it is scarcely necessary for us to traverse the details again. A Royal Commission might satisfactorily settle the question, but without a Royal Commission it seems to us that a Main Drainage Board, apart from the Corporation, would be the most practical organisation for carrying out the work. The action in furtherance of the Bill for the proposed Main Drainage Board was recently suspended in deference to the statements of the Corporation, which were put forth as if stamped with Government authority, but the statements of the Corporation, like many proceeding from the same quarter previously, turned out to be fallacies, as the Government has shown that it had no intention of advancing money on the conditions stated. It is now resolved, on the part of the citizens, to proceed with the Bill for the formation of the Drainage Board, by which the functions now vested in the Corporation in respect to the sewerage of the city are to be transferred to the new board. If





PREMISES IN COURSE OF ERECTION IN HENRY STREET  
FOR DINING-ROOMS & CONFECTIONERY ESTABLISHMENT

Messrs ARNOLD & CO. PROPRIETORS

GEO. P. BEATER. ARCHITECT  
17 LICH. SACKVILLE ST. DUBLIN.





this board finds that the sum of £350,000 is insufficient for the completion of the scheme, it would in that event call for a Royal Commission.

Defenders of the Corporation are crying out for more time and the suspension of further outside action, but for the life of us we cannot see what is to be gained by postponing the action of the citizens. It has certainly not been out of any regard for the pockets of the ratepayers that the Corporation have dilly-dallied with this measure for years, and notably since 1871. The time has arrived at last for energetic action on behalf of the ratepayers. A sweeping change is necessary, and that citizen who cannot divine the aims of the chief members of the Main Drainage Committee must be as blind as a bat, or several degrees more blind. The first inception of this Dublin Main Drainage Scheme was not an honest one. The projectors and abettors hoped to make a milch cow of it for "parents, friends, and relatives." Hence its gigantic dimensions, for there was a numerous staff of workers and hangers-on to be provided for.

Of course, if this Bill for the establishment of a Main Drainage Board is pushed on, the Corporation will oppose it, and that too "in the name of the citizens"—in the name of the very men they have been crushing to earth for years by a system of cruel taxation, the major portion of which taxation goes to the support of a staff of officers and officials, whose bloated dimensions and expense exceeds that of any Town Council in modern times, when compared with the work to be performed. How any honest man can get up in public to defend the Corporation on the head of the Main Drainage Scheme is a subject of marvel indeed. With a river, that might be a conduit of health and ventilation, a foul, elongated, open sewer passing through the heart of the city—with streets, and lanes, and alleys, and courts reeking with filth and pestilence, with a grinding taxation every year growing heavier and heavier, while the most ordinary sanitary duties are either wholly neglected or characterised by the grossest incapacity—what has Dublin to expect from the present constitution of her Corporation? It would be a folly to wait longer, and we cannot at present see any other path open to the citizens for escape from their present ills than that which they are now preparing to tread.

#### A SOCIAL MAGNA CHARTA,

THE *National Food and Fuel Reformer*, a periodical which has been for some months in existence, continues to perform most useful work. Under the heading of an article entitled "The Provisions of a New Magna Charta," it says:—

"Under the practical consideration of such measures, forming a new Magna Charta for the people at large, would, first and foremost, come the development of the means 'to live,' and to do this all available productive powers of home produce must be encouraged. As yet, we consider this question only sluggishly, and being a highly commercial nation, we may perhaps never take into due account its importance as a lever of nationality, but only encourage its progress from commercial ideas—'how it will pay.' On making, therefore, the cultivation of waste lands, the employment of sewage, the improvement of farming—stock; the encouragement of poultry-farming; the protection and development of fisheries—a paying concern—depends their progress. As a matter 'per se' we are not inclined to take up these things; but as a speculative affair, we may be brought to see that individual well-being depends upon them. Here now should the Legislature step in; for with a few bold strokes it may guide commercial tendencies

into such sound channels, that they will overflow with 'milk and honey' for the nation. A crown of glory may be obtained by legislators who will con over the problem 'How a people lives,' and see that each rood of land wants cultivation, each pond its inmates, each garden its vegetable productions, and that neglect of production means unequal division of food, starvation, intemperance, and debased individuality. Next to this point in our New Magna Charta, developing the means of production, comes their fair sale, and 'Public Food Markets,' is one of the principal points to be considered. The moment speculation will find there its return, we shall have them, not before, and could we not get legislative sanction for their establishment? Further the sale of pure articles of food is a point of the 'compact,' and till adulteration is made a 'fraud,' and will therefore not pay; shall we be poisoned and pestered with the most heinous mixtures that can be imagined. The much proclaimed principle of 'usage' is merely a nefarious cloak covering fraudulent practices. Still further, the 'free importation' of food and its 'untaxed sale at home,' are important points in our 'compact.' Food cannot be taxed; each penny paid into Her Majesty's Exchequer for any food-tax whatsoever, is a pound lost to the nation, or the individuals composing it. If you eat taxed-food, and drink taxed-food, you consume with it your own strength, and repeating this process daily, you repeat *ad nauseam*, the vitiating custom of paying for the means of bodily maintenance twice over. Food, fuel, and light monopolies are other points that come into our 'compact; to do away with them by legislative enactments, will more and more become a necessity; for under them the people and the individual must suffer; they tie us as it were hand and foot, and do not allow us the free use of the means we may possess. Whenever it will bring a good return to encourage the free circulation, and free sale of all life's necessities, then shall we have a chance of 'healthy existence.' A most valuable point in our 'compact' is the legislative encouragement of healthy dwellings and the supervision of scales of rent; it is a pity that capital is not more employed in this social phase of our necessities, for at present our great towns and our villages are harbouring and encouraging the lowest types of humanity by the debasing influences of dirty and tumbledown homes. And lastly, though we cannot enumerate all the necessary provisions of our new Magna Charta, comes the expulsion of that fearful ignorance of the conditions of our own frame and its needful supply, which creates so astounding a waste of human power, that it would scarcely be credited were its searching, harrowing consequences not seen in our daily experience, and were we not always reminded, that while we have a meal, thousands must from mere want of knowledge how to use their means be starving, and it is not a pleasant existence to live merely by staving off starvation. Let it be a point of the compact that the knowledge of ourselves and our food should become a recognised factor in our educational means."

#### THE INSTITUTION OF CIVIL ENGINEERS (LONDON).

At the thirteenth ordinary meeting of the Session 1874-5, held on Tuesday evening, the 23rd ult., Mr. Thomas E. Harrison, President, in the chair, the first paper read was on "The Working of Railways," by Mr. George Findlay, Asso. Inst. C.E.

Railway traffic had developed during the last 25 years to an extent such as could never have been anticipated, far out-growing the means which originally sufficed for its accommodation. This had called for the greatest ingenuity and ability of management, and of engineering skill, in order to admit of the business being conducted with order and regularity. The primary difficulty which railway management had to contend with was in working fast and slow, light and heavy trains, all on the same line of rails, representing, when in motion, an enormous weight and momentum to be controlled under the most varying conditions of weather and temperature, and the manner in which the service was carried on, when fully understood in all its details, reflected the greatest credit upon the railway staff generally. To solve this difficult problem, the first essentials were a good permanent way, efficient and powerful engines and rolling stock, proper signalling arrangements, and the speaking and block telegraph, together with a trained and qualified staff of servants, and these requirements the leading railway companies spared no pains to secure and maintain. The London and North Western Railway was divided, for purposes of superintendence, into several sections, each under the charge of a responsible officer. The greatest possible attention was paid to the training and organization of the staff, the leading principle

being to recruit the service from young lads who, by the time they reached manhood, became qualified to undertake the most important duties, while promotion was based upon a system of selection from the ranks by merit, irrespective of length of service. The total number of servants employed by the London and North Western Railway Company was 40,000 men, of whom about 16,000 were engaged in the actual working of the traffic. It had a system of 1,960 miles of railway (including lines worked and leased); the number of engines was 1,935, the number of carriages 2,722, and of wagons 39,581. The train mileage for the year ending June, 1874, was 30,558,522; the number of passengers carried, 42,511,777; the weight of goods, 24,292,894 tons; and the revenue, £8,768,241. To illustrate the extent to which the passenger trains had increased in weight, the 5 p.m. express train from Euston, which, in 1863, weighed 104 tons, had, in 1872, grown to 212 tons, this increase of course necessitating larger and more powerful engines, a more substantial permanent way, and the use of steel rails. The passenger traffic was worked by four classes of engines, of which the leading features were as follows:— "The Lady of the Lake" class, with cylinders of 16 inches diameter, a driving-wheel of 7 feet 6 inches, a heating surface (including fire-box) of 1,068 square feet, and weighing, in working order, 27 tons 5 cwt.; the "Big Bloomer" class, with a cylinder of 16 inches; driving wheel, 7 feet; heating surface, 1,166 feet, and weighing 30 tons 16 cwt.; an engine having a cylinder of 17 inches, a driving-wheel 5 feet 6 inches, a heating surface of 1,074 square feet, and weighing 31 tons; and one with a cylinder of 17 inches, a driving-wheel of 6 feet 6 inches, a heating surface of 1,083 feet, and weighing 32½ tons. Hitherto express passenger trains had been worked by single engines of the two first-named classes, but it was now thought better to employ, for the heavier expresses, a coupled engine of the last-named type. The speed of coal trains was limited to 15 miles an hour, and these trains were worked by an engine specially constructed for the purpose, having a diameter of cylinder of 17 in., a driving wheel of 4 ft. 3 in., a heating surface of 1,074 feet, and weighing 29 tons 11 cwt. The company had adopted for their express passenger and suburban trains a modification of Clark's friction brake, suggested by Mr. F. W. Webb, M. Inst. C.E., which was found to be effective, but so powerful an agent not being required for the stoppage of trains, under ordinary circumstances, it was only made use of in cases of emergency, and subject to regulations expressly laid down for the guidance of the guards and drivers.

The author exhibited a diagram illustrating the theory of a time-hill with trains regularly appointed to run at different rates of speed, and with specified stations and sidings for them to pass each other. If this could be realised in every-day practice it would be the perfection of railway working; but from the varying circumstances of the traffic such a result could never be absolutely attained.

#### THE PEOPLE'S PARK, BLACKROCK.

THIS long-pending project was the subject of a motion to the following effect, by Mr. Smith, at a late meeting of the commissioners:—

"That it is incumbent upon the commissioners, as trustees for the ratepayers, to take special care that they acquire a good, valid, and legal title to all lands and premises which they may take, purchase, or acquire, for the purpose of converting or forming same into a people's park, such title to be approved of by eminent counsel to be named by the board, and that no funds of the township shall be paid, laid out, or expended for such purposes until it shall be approved of."

Though seconded, the chairman refused to put the motion to the meeting, but the following amendment was moved instead, proposed by Mr. Magrath:—

"That this board, bearing in mind that it has already retained the services of a barrister of experience to act with our solicitor in acquiring for us by purchase and otherwise lands and premises for a people's park, we decidedly think that it is quite unnecessary to take any further legal opinion than that which we have already had at a very considerable cost, and when it is also not to be forgotten that said lands and premises are about to be conveyed to us by a lord of the soil, whose title must be undeniable, it would be, therefore, injudicious use of the public funds of the township to apply them in any further law expenses in the matter."

We certainly do not think that the resolution was out of place, although we are ardent advocates for the People's Park.

## ON SOME DIFFERENCES BETWEEN BRITISH AND AMERICAN ARCHITECTURAL PRACTICE.\*

(Concluded from page 69.)

It is commonly urged in defence of the attempt to set up the same rates of charge here as in England, that the cost of living is so much greater here than there as to justify it. But this is not by any means clear. House rent, clothing, and a few other items cost more, but the difference is not such as to justify architects in asking so very much more for their services than their English brethren get. The medical and legal professions do not ask four or five times the fees of their British confreres. It need scarcely be observed that the judges, cabinet ministers, and other high officials get much less than the corresponding functionaries in the old country. But supposing the statement as to the cost of living were admitted, then the means adopted to meet the increased expense are very unfortunate, for the effect, as above pointed out, is greatly to limit and circumscribe the employment of architects, and cause them to realise much less incomes on the whole than are attained by the members of the same profession in the old country.

It may, however, be worth considering whether it is not better to keep to the time-honoured rate, but to make it include, not only all that is included in England, but also some things that in England are considered additional matters, although incidental to an architect's employment. And I am not clear but that this was the idea of the original framers of the American scale. At least, such is the plain meaning of it as it stands. The first clause reads, "For full professional services (including superintendence) five per cent. on the cost of the work." Passing over the possibility of an architect's having to prepare several designs for the same work, for which the English scale specially provides an extra charge, and for which the American one makes no provision, let us inquire what would any intelligent client understand by this? Would not he at any rate understand that the architect was bound to superintend fully? and would not he justly consider that a demand on the part of the architect for a local superintendent, to be paid by the client, in addition to what he pays the architect, was highly unreasonable? And yet I have heard and read loud complaints from American architects because clients will take this view. I think it a great matter of regret that there should be any misunderstanding on such an important subject, and that it issues either in the architects attempting to carry on their works without competent local superintendents, or that the clients will insist on having such, but make a deduction from the architect's fees on that account, and too often transfer the confidence which should be given to the architect to the superintendent instead. In fact, instead of working harmoniously, as do the English architects and their local superintendents, or "clerks of works," as they are called, the American architects and superintendents are commonly to be found arrayed in hostility against each other. And I hope I will be pardoned for saying that I fear the chief blame for this unsatisfactory state of things rests with the profession. For surely the idea that the architects themselves, by making occasional visits, can fully and properly superintend works of any consequence, whether in their immediate neighbourhood or perhaps miles away, is downright preposterous. Most clients regard it as such; and, if there be no other superintendent than the architect, expect, and with reason, to see him at the building every day. Of course the client is disappointed in this expectation, and finds that what he and his architect meant respectively by "full professional services (including superintendence)" were two different things. Unless he is satisfied to have his work

scamped, he will insist on a local superintendent forthwith, on account of whom the architect's fees are reduced, and who, feeling that the architect would have done without him if he could, too often begins to do his best to oust the architect and supplant him in the confidence of the employer. This is clearly a most objectionable state of things, and can only be remedied in one or the other of two ways—viz., either by the architects honestly undertaking to do by deputy what they cannot do in person, and providing competent local superintendents, appointed and paid by themselves (which I believe they could well afford to do if they get the five per cent.); or by a clear distinction being drawn between the general superintendence, which the architect can give himself, and the close and constant supervision by a local superintendent, and by the client being at once advised that the first is all that he can expect from his architect, the second he must pay for in addition. This latter is, as is well known, the English system, and is clearly enough stated in the English scale; and if it be thought desirable to have the same adopted here, it should also be stated in the American scale. I doubt very much, however, that the American public at large will ever agree to pay architects five per cent. and pay superintendents in addition; and I would recommend in preference, to keep to the existing scale, but act on it in its full meaning, and let the architects of all important works provide competent local superintendents paid by themselves and responsible directly to them. This would go far to gain the confidence of the clients, and reconcile them to the payment of the five per cent., and I am informed has been the practice of some of the most successful men, both in New York and Boston. Anything almost would be better than to have noble designs murdered in their execution for want of proper supervision, or to have architects ousted from a most important part of their business by the rivalry of hostile superintendents, thereby reducing them to the level of mere draughtsmen.

There can scarcely be a more dangerous rock for the architectural profession to split on than this; for not alone is the superintendence of their buildings likely to be taken out of their hands, but also the selection of contractors and control of building operations generally. In this respect the practice here contrasts disadvantageously with that of the old country. There the whole business of getting tenders and arranging contracts is done under the architect's direction, it being a settled principle that none but contractors with whom he is satisfied shall be employed. Here, I regret to observe, selections of the same kind are made without any reference to the architect, and often enough, in consequence, contracts for large works are awarded to scoundrels destitute alike of principle, capital, or credit, from whom the architect may as well expect to get good work as to bring any other clean thing out of an unclean. And it may easily be observed that no matter how little the architect may have had to do with the selection of the contractor, and how honestly he may have endeavoured to compel the proper execution of the work, he is held fully responsible, both legally and otherwise, for whatever failings or defects may be found to exist in it.

The next important point of difference between English and American practice has reference to the preparation of estimates, and is of the utmost consequence as affecting the credit of the profession. I think there can be but little doubt but that the American public has little or no faith in architects' estimates. The report of Governor Dix to the Legislature of New York contained most severe strictures on the profession in this respect, and whether fully justified or not, his remarks were extensively echoed by the Press, and I am not aware that any satisfactory answer or explanation was ever given on the part of the profession. And if we look into the matter and compare notes, we find

that this is unquestionably a neglected matter by American architects. The manner in which estimates or bids for works are obtained in chief cities of the United States is still the same as it was in England fifty years ago, and may lawfully be characterised as unsystematic, wasteful, and inaccurate. It does not seem to be usual to have any calculations made on the part of the owner or architect as to the amount of work requisite to carry out a design, or the prices that work is likely to cost, until actual bids or tenders are required. Architects' estimates, therefore, are very seldom made at all, and what pass for them would be more properly described as architects' guesses, not being the result of calculation. When tenders are asked for, accordingly, neither the architect nor owner has commonly any but a very hazy idea as to their probable amount, and the extent to which that may be affected by any particular item in the design or specification. The drawings and specification are placed before a number of contractors, who commonly take up a deal of the time of the architect and his assistants, as well as a deal of his office room, while engaged in overhauling them, and making out their calculations; and unless the architect has his drawings lithographed, so as to be able to supply each contractor with a copy, a vast deal of delay and inconvenience occurs in lending out the drawings to one after the other. When the bids or tenders come in, they only appear ordinarily as lump sums, for the contractors are very chary of allowing their detailed calculations to be seen, and with good reason, for any that have yet come under my notice exhibit the most surprising discrepancies and absurdities, and it is therefore easy to understand why they should be so sedulously kept out of view.

Before reviewing other defects in this system, I may first observe that it is evident a large waste of labour is involved in the fact that each contractor has to calculate the quantities of work for himself—a business which might just as well be done by one for all, and a very complex matter if properly done, but which of course may be slurred over or jumped at if men prefer to do so. The fact that contractors are found willing to incur all this unnecessary trouble, is no defence for the waste it involves. At present it is the only means they have of obtaining contracts, and must be submitted to, but of course it must be paid for in some way and come out of somebody's pocket. Architects may fancy it is no affair of theirs, because the contractors are willing to put up with it; but this principle, if generally acted on throughout the world, would forbid all improvements by which waste is stayed or economy effected. A steamship, railroad, or telegraph company, for instance, which would neglect any means by which waste could be stayed, merely because the public or shareholders, not having any other resource, had to put up with the result whether on the rates or dividends, would be guilty of gross unfaithfulness either to the shareholders or public, possibly to both. If the architects are to be really what they are nominally, the "master-builders," it is their duty in the interest of the building public to make such arrangements as will prevent waste of all kinds, and thereby popularise as much as possible the business in which they are engaged.

Apart from this, a set of tenders only in lump sums is unsatisfactory: first, because it gives no security against collusion; and, secondly, because it gives no aid towards revision and adjustment, should it be found, as so often happens, that the amounts exceed the prescribed limits. It does not by any means follow that because a set of tenders differing not very widely are received for a work, that its proper value has been reached. The often hasty and irregular manner in which the quantities are calculated, as above described, may reasonably be expected to issue in mistakes, through which a man whose prices may be lowest and facilities for executing work are the most advantageous,

\* By William Fogerty, F.R.I.B.A. Read at meeting of the New York Chapter of the American Institute of Architects, December 1, 1874.

may be at the top of the list, and *vice versa*. Caucuses and combinations may be, and, if I am rightly informed, often are found amongst contractors by which they agree on whose bid is to be the lowest, the rest putting in at a small sum over it. Again, there may be items in the work which cost more than they are really worth to the design, and which, if the architect or owner knew the cost of separately, they would be glad to dispense with or modify. But supposing one of the tenders to be deemed satisfactory and be accepted, what means exist for the architect to adjust the amounts of the instalments to be paid on account? A mere lump sum for the whole gives him no guide in determining these. The same applies to the valuation and adjustment of such deviations, whether by way of addition or reduction, as may be ordered during the execution of the work. It is often provided that the amounts to be allowed for these are to be determined by the architect; but how? Without the possession of some better guide than the lump amount of the contract, all these matters must be mere guess work; and do we find in practice that either the public or the contractors are quite satisfied to abide by the guesses of the architect on these subjects? So far as my observation has gone, it appears to me that American architects generally do not command the confidence of either in this important part of their duty, and that consequently they are frequently displaced from the position they ought to occupy as sole umpires or arbiters between employers and contractors, and lose thereby both the emoluments and consideration which would attach to such a position.

The English system, in contrast with this, is as follows: During the preparation of or on the completion of the drawings and specification, the architect employs a building surveyor (one of a large, useful, and respectable profession), to "take out the quantities," as it is called, or in other words, to calculate with accuracy the amount of work of every kind required for the building. Should the architect be under any particular necessity for keeping within prescribed limits of expense, the surveyor often prices these himself, and advises the architect of the cost of any items that it may be desirable to modify or reduce, in preparing the specification. Ordinarily, however, this is not done till after the tenders are received. On the completion of the bills of quantities, they are lithographed, and a copy furnished to each party for whom a tender is to be received, whether they be invited by public or private advertisement. This, of course relieves the contractors of nine-tenths of the trouble they have here, as, on receipt of the bills of quantities, they have only to append their prices and make up the amounts. As a consequence, contractors can tender for ten buildings at less trouble to themselves than they can for one here, and the tenders are delivered with a promptitude and certainty that could not otherwise be attained. So fully is this system appreciated by the contractors as well as architects that it would be quite useless to ask for tenders in any of the great cities without quantities being supplied. Contractors would very properly tell architects, if called upon to come and estimate from his plans, that they had better use for their time, and that of their clerks, than to calculate quantities for him or his clients merely on speculation. It is not by any means, as has been suggested to me here, that British contractors are not so intelligent as those here, and do not know how to calculate quantities. Builders or building contractors there are as shrewd and intelligent as are to be found anywhere, but just because of this they are unwilling, each one, to waste his time doing what one could do for all; and, if a surveyor were not appointed by the architect, they would either refuse to tender, or meet and elect one to do the business for them. Their experience has shown them what might be expected; namely, that a skilled surveyor who makes a speciality of the business is more likely to

analyse the drawings correctly than any one else, and that bills of quantities prepared in this way are more full and correct than any they could prepare for themselves, even if they could spare the time necessary to be given to it. Just as a man who is his own lawyer has a fool for his client, they would consider a man who insisted on taking out his own quantities was a fool for his pains. I have no doubt but that respectable American contractors generally would think the same if but they were given the alternative, and up to the present my experience has fully sustained that view.

When the tenders are received, should the amounts be excessive, the maker of the lowest is ordinarily invited to confer with the architect, and produce, for the information of the latter only, his detailed estimate, based on the quantities, which shows, of course, the cost of each item, as well as of the whole work. It is reasonably assumed that both the architect and contractor should be interested in having the work go on to a successful issue, instead of being abandoned as might happen on account of its extravagance, and accordingly there is neither jealousy nor mystery between the architect and contractor, as seems to prevail here. Usually the possession of the detailed estimate enables the cost to be adjusted to meet the wishes of the owner; the alterations necessary in the specification are made, and the work proceeds. It is the usual condition in the contract that the contractor is to deposit with the architect a copy of the detailed estimate, and that it is to be the basis for ascertaining the amounts due as instalments during the progress of the work, also for valuing extras or omissions. It is not usually shown to the clients, but the possession of it is of great service to the architect as giving him an insight into the manner in which the funds at his disposal are being expended, and placing him in a position to do strict justice between client and contractor, which he would not otherwise occupy. The detailed estimate is of equal service to the contractor, as it enables him to order his materials and make sub-contracts with great facility, and it is just as much a protection to every honest interest of his as of the client.

The cost of taking out the quantities (or in other words the surveyor's fee) is ordinarily defrayed by a commission which varies in England from one to two and one-half per cent., and which in inviting the tenders is arranged to be paid by the contractor who gets the work, who of course duly provides for it at the foot of his estimate. Of course it really comes upon the owner, as is proper, for who else should pay the whole expense of a building operation? But all experience has shown that it is no extra expense, but, like an architect's commission or an insurance premium, is money laid out to advantage. No building owner of any intelligence would be found to object to it. Should the work be abandoned it has been held by the courts that it becomes payable directly by the owner. In no case is it chargeable to the architect, whose commission of five per cent. is even more distinct from this item than it is from the salary of the clerk of works.

Although retained by the architect for the purposes above mentioned, it is not usual in England to make the contract refer to the quantities, but to the drawings and specification. It follows, therefore, that should there be any error by which the contractor suffers loss, the surveyor is personally liable to him. This element, about which sometimes a great noise is made in the English journals, practically amounts to very little. Experience has shown that such mistakes are rare, and that in general surveyors do the business more accurately than could the contractors themselves, and no really qualified expert, whether he be surveyor, architect, engineer, lawyer, or physician, should be afraid to assume the fair measure of responsibility which the practice of his profession involves.

In Scotland, however, a difference exists, which is characteristic of that canny nation,

and is really though not apparently more economical. The contracts are usually taken there with special reference to the quantities, the contractor agreeing to supply the amounts of work therein stated, but with this proviso, that should less or more be required for the execution of the building as shown in the drawings, the difference is to be credited or charged, as the case may require. This to some extent lessens the surveyor's responsibility, but often involves a remeasurement of the work; but it secures that the client only pays exactly for the amount of work he gets, and the builder is sure of being paid for all the work he has done. It is liable, however, to the objection that the contract amount is not so definite and fixed as under the English system, and however it may find favour in Scotland, has as yet not been adopted south of the Tweed. Of course the main principles involved are identical, one being that the architect should have a controlling power in regard to the estimates and cost as well as every other particular relating to a building, and that these should be calculated in a regular and systematic manner.

I think a fair consideration of this system, whether as practised in England or Scotland, will show that it is just as well adapted to the practice of this country as of the United Kingdom, and that the position and influence of the architectural profession would be largely improved by its adoption. I am confident that the want of such a system has a good deal to do with the public dissatisfaction with the profession alluded to above. It clearly rests with the architects to take the first step in its introduction, unless indeed they choose to resign their proper position as the masters of the art of building. My experience has shown that the American public and building contractors are by no means slow to discern the advantage of any improved system of business, and I have found both quite ready to admit and recognise the utility of this. Some contractors, I have heard, object, but on a principle which will scarcely bear examination. They say on that system any one can tender and the competition will be too sharp. This is practically an admission of the efficiency of the system, and can hardly be entertained by architects, who, being employed by the owners, should consult their interests first. But more than one contractor who has objected to the system has acknowledged that he did so because it would be a safeguard to the owner. I have found, however, that there are plenty of honest and responsible contractors ready to admit its great utility, and to avail themselves of it also whenever it has been fairly offered to them. From the great cost of building operations here in comparison with the United Kingdom, a much less rate per cent. would pay for the service here than what prevails there—say one-half to one per cent.—and would in all probability save ten times its amount besides the other advantages referred to as likely to result from its adoption.

The supposed unwillingness of contractors generally to conform to the system has been put forward by some architects to me as an objection to it. This unwillingness, as above mentioned, I have not found to exist, unless in a few cases, and with a class of men least deserving of the attention of architects. Even if it did exist, are the contractors to be looked on as the proper persons to decide such a question, or does it not rather belong to the province of the architects?

I believe there are plenty of contractors who would do without architects altogether if they could, and as a parallel to their willingness to make their own calculations, we find this class ready on all occasions to prepare plans also, as they profess, free of charge. If the architects be disposed to abdicate their functions in favour of such contractors in deciding one question, they might just as well do the same with reference to the other, and become mere draughtsmen, under the direction of the contractors, at once. If the architects are afraid to get

proper calculations made in the interest of and for the protection of their clients, merely because certain contractors do not like it, they might as well give up preparing accurate plans and specifications and the whole business of superintendence because the same class of contractors would much prefer doing without these things also.

Above all, the interests of the clients or building public imperatively demand that such an important branch of architectural business as the preparation of detailed estimates should not be neglected by the profession or handed over to those whose interests are adverse, and who, not being specially paid for them, can hardly be blamed if they keep their calculations for themselves, and try to recompense themselves in some other way.

The Scriptural question "Which of you intending to build a tower sitteth not down first and counteth the cost thereof?" must be answered negatively if we apply it to American architectural practice as it is; and if the result of beginning to build without being able to finish does not often take place, the almost equally unsatisfactory result of having to pay an enormous sum beyond what was originally contemplated happens too often, and, as in the case of the Governor's report already alluded to, brings no small discredit on the profession.

I trust that in instituting the foregoing comparison between British and American architectural practice, I have not overstepped the limits of fair criticism, my object being to place the experience of the profession in the old country at the service of those who practise the same in the new, and with a sincere desire and a sanguine hope that amidst all the progress making in other arts, the noble and important one of architecture may not remain behind, and that its professors may reap the benefit in being fully accorded the emoluments and consideration to which the practice of their art should so justly entitle them.

#### PROFESSOR BARRY'S LECTURES AT THE ROYAL ACADEMY.

This distinguished architect is delivering a course of lectures at the Royal Academy, London. The third of the course was delivered on the 8th inst. We intend to reproduce a portion of these lectures; those in which he dealt with the life and works of Michael Angelo and his contemporaries, and the architecture of their times, is particularly instructive.

#### CORRESPONDENCE.

##### MORE ABOUT "LIGHT" BILLS.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—The Board of Guardians of the North Dublin Union have, on the recommendation of Mr. W. F. Lawlor, T.C., refused to pay the amount of account furnished by the Gas Company for past quarter, on the ground of its being in excess by upwards of £20 the amount paid by them for gas consumed during the corresponding quarter of 1873, there appearing no just cause for such discrepancy. The result of this step is anxiously looked for by gas consumers, who universally complain of their being overcharged for gas in a similar and even worse manner. It is to be hoped that the Board of Guardians will not be induced by any plausible excuse to sanction the payment of such overcharge, or to condone it should the Gas Company waive their claim, as I understand they have done in other cases. Mr. Fowles, in his report published in March last, recommended that the pressure on the Dublin gas mains might be increased from 8-10ths to 1 inch; and it may be inferred that a pressure of from 2 in. to 3 in. was unthought of by him. Now the quality of the gas supplied is so bad as to require the increased pressure of from 28 to 30 tenths, compelling the meter to become a caricature of truth by indicating an unwarranted consumption of gas, it, at the time of its being tested, passing through the measuring drum wheel during one revolution a given bulk of gas under a very low pressure. In Liverpool, the Corporation, on the report of their Borough Engineer, are about taking steps to compel

the gas company to change a similar state of gas pressure, &c., and to refund a large sum of money. As far as our authorities are concerned, gas may do as it pleases, for

"To some it is a bounty great;  
To some the milch cow of the field;  
Their care is but to calculate  
What butter it will yield."

JAMES KIRBY.

41 Cuffe-street, 12th March, 1875.

#### CHURCH BUILDING IN AMERICA.

In this week's *Architect* there is an illustration giving the interior view of the Redemptorists' Church, Brooklyn, near Boston, to be erected from the designs of Mr. E. Welby Pugin, of London and New York. The plan consists of nave, double aisles, and transepts, and the building measures over all 260 ft. in length by 120 in width, and will be 70 ft. to the groining, which will be in timber. At the junction of nave and transepts the wall will be carried up so as to form a lantern 40 ft. square, which will terminate octagonally, and be open to the church. In addition to the high altar there will be sixteen minor altars, and in addition to the church a monastery for the Redemptorist Fathers is also contemplated. The church will be erected of Ohio white and a local stone of a greenish tint.

#### ARCHÆOLOGICAL SOCIETIES.

OUR contemporary the *Builder* says:—"It is with regret we have to announce that the negotiations for amalgamating the two London societies have been abandoned by the Archæological Institute. The suggestion for reuniting was made by Lord Talbot de Malahide at the meeting at Ripon last year. Whereupon Mr. Tucker (Rouge Croix) "took up his parable." He being a member of council of both societies has worked warmly and strenuously for the bringing together of the two bodies. The Archæological Association, urged on by what was believed to be greater forwardness of action on the part of the Institute, resolved to address the associates, and the result of a circular was that ten to one have been in favour of entering into negotiations. It now appears that the Institute had not arrived at a point so advanced as to issue a circular, although it had been drawn up, and the council has definitely abandoned the matter. This conclusion has been communicated by Mr. Tucker to the hon. treasurer of the association, and thus for the second time, after themselves opening the question of amalgamation, has the accomplishment been, at any rate, postponed by the Institute.

#### HOME AND FOREIGN NOTES.

WEXFORD WATER-WORKS.—Captain Robinson, L.G.B.I., held an inquiry on Thursday, relative to a memorial from the Wexford Corporation asking for a loan of £30,000 for the formation of water-works, and also for power to construct and maintain such works. There was a large number of ratepayers present. Several written objections were handed in, and a large body of evidence taken on the subject of the proposed works.

We are informed that a committee of the Kingstown Commissioners are sitting daily in the 'Town-rooms,' in Lower George's-street, reading over the Provisional Order and Local Government Bill, extending to some 250 folio pages. When corrected and approved, the voluminous document must again be fairly copied out.

J. BIRNIE PHILLIP, SCULPTOR.—This talented sculptor who exhibited much promise in his earlier works, and who fulfilled the hopes in his regard, died at the comparatively early age of 48, on the 2nd inst. Though all his works are well executed, perhaps that by which he will be best known are those successful efforts of his chisel on the basement of the Hyde Park Memorial.

A very ingenious application of electro-metal-lurgy has recently been brought before the notice of the Society of Arts. It consists in the application of a coat of silver, by means of electro-deposition, on natural leaves and flowers. By this means very delicate ornaments are produced, since the precise form and texture of the natural leaf is preserved under the thin silver film. The special process by which these results are attained is the invention of Mr. Denton.

Some important discoveries of Roman remains have been made at South Shields, at the mouth of the Tyne. An estate is being laid out upon the ancient "Lawe" there by the Ecclesiastical Commissioners. This is the supposed site of a strong Roman fortification connected with the Roman Wall. The "find" included a column 12 ft. high, a number of Roman coins, and other remains.

Recent advices from St. Petersburg indicate that its sanitary condition is very bad indeed. There are said to be more than 10,000 cases of typhus and enteric fever under treatment, or about one in seventy of the entire population, and these numbers are exclusive of many treated in private houses. A large proportion of the poorer inhabitants live in underground cellars, the filthy state of which is said to be appalling.

The first prize (silver medal) offered for competition to the many pupils of Professor Gregoire's French classes has been awarded to Miss Peacock. The result of the examination may be regarded as one highly creditable both to the learned professor and his talented pupil.

THE PROPOSED PIER AT BALLYVAUGHAN.—Relative to this work, which Sir Colman O'Loughlin, M.P., had brought under the consideration of the grand jury, the worthy member stated that the Board of Works were resolved to recommend to the Treasury the payment of £3,000 towards the work. The total estimate would be £4,350, which would leave £1,350 to be borne by the county. Sir Colman O'Loughlin proposed a resolution advocating the presentment for the purpose, the expense to be levied off the county at large. After a long discussion, the resolution was withdrawn, it being the unanimous feeling of the grand jury that the presentment should come off the barony and not the county at large.

JOHN TIMBS, F.S.A.—This well-known and veteran author has passed away. As an antiquarian, and an author of various useful and chatty compilations of old London times and manners, Mr. Timbs' name has been for long years before the public. Among his works are—"The Year-book of Facts in Science and Art," "Curiosities of London," "Popular Errors Explained," "Things not Generally Known," "Walks and Talks about London," "The Romance of London," "English Eccentrics and Eccentricities," and "Nooks and Corners of English Life." He edited the *Mirror* from 1827 to 1838, and was for a long period working editor of the *Illustrated London News*.

An interesting antiquarian discovery has just been made in Lincolnshire. In the progress of an effort to restore the ancient church of Althorpe, the Rev. R. Charlton, the rector, has lately discovered a fine memorial brass with an effigy and legend of William de Lound, whose appointment to the rectory dates as far back as 1355. The brass, which is in an excellent state of preservation, has been hidden for centuries, having been buried under the solid masonry of the richly-canopied sedilia in the chancel, the seat of which now proves to be the tomb. The legend, in the character of the period, runs thus:—"Hic jacet Willelms de Lound quondam clericus cancellarius domini regis cuius anime propicietur deus."

AN INNOVATION.—It is very seldom that one has the chance of seeing or hearing any new thing, that "when found it is well to make a note of it," and if in most circumstances novelty has charms, surely it has especial ones on the subject of what one of Dickens's heroes calls "Toomatism." In Mount Jerome Cemetery, some days ago, we experienced that rare but coveted thing—a sensation! We were astonished to see something practical, sensible, and useful developed in the way of the more certain identification of the exact spots in which the mortal remains of our friends and relatives have been deposited by our pious care. It is not requisite that we should dive into ancient or modern romance, in order to convince ourselves of the extreme importance of this piece of knowledge. We may, indeed, learn from these sources that it is not impossible for tombstones to be defaced, inscriptions tampered with, and names and dates made to play all sorts of games, in order to establish pedigrees, or to further little plots for defrauding rightful claimants of the beneficial effects of testamentary bequests. *Tempus edax rerum* takes a pleasure in setting folks by the ears, himself eating away evidence, and he works with a will, in company with moths and rust, to this end. Most valuable discoveries and inventions are so simple that people when they are informed of them exclaim—"Oh! yes, of course we might have thought of that ourselves!" Of course they might, but they didn't! None the less, originators get very little credit: and, we dare say, the individual who thought of the very simple thing we are about to describe will not share a better fate than his fellows,



though he thoroughly deserves to do so. Well, then! on the lid of a coffin we saw deposited in its last resting-place in the cemetery, instead of the usual tin, brass, copper, or silver breastplate, with its engraved superscription, we described a neat slab of marble, with the words incised on it in the usual manner. The advantage of this change of material is obvious. "The grave damp" in a very few years are capable of corroding any metallic substance, and important evidence that may have been abstracted by nature or art from above ground, cannot be gathered even by the worms below. The originator of the use of the marble slab (Mr. C. W. Harrison, of Great Brunswick-street, we believe) very justly argues that it will remain intact to tell its tale, when the coffin and its contents have become *pulvis et umbra*. These stone breast tablets have the advantage, moreover, of being considerably more economic than the metal ones, and can be had in any description of marble, from plain Sicilian to Porphyry such as that on which inscriptions are now perfect that give us cotemporaneous accounts of the building of the Tower of Babel. The design can also, of course, be varied, and we believe specimens in great variety can be seen at Mr. Harrison's *Atelier*. They would be especially useful in cemeteries, as late occurrences in the law courts will testify.

#### NEW PREMISES IN HENRY-STREET.

THE premises now erecting for Messrs. Arnott and Co., in Henry-street, will contain, besides the front and back shops (the latter of which will be used as a luncheon saloon), two large dining and refreshment rooms for ladies, with dressing-rooms, lavatories, &c., &c., off same. There is also a dining-room for ladies and gentlemen, 27 ft. long and about 20 ft. wide. The basement contains kitchens, bake-house, scullery, wine-cellar, larders, &c., &c.

The front elevation is of red brick, with limestone balcony and Portland stone strings, &c. The spandrels formed by the front will be filled in with encaustic tiles. The fixtures, counters, &c., in shop and dining-rooms will be of pitch pine and yellow pine, with American walnut in a few places. The whole is intended to be French polished.

Mr. Geo. P. Beater, Sackville-street, is the architect, and Mr. P. Brodigan, Grantham-street, the contractor.

#### UNSANITARY STATE OF DROGHEDA.

THE local *Conservative*, in the course of a leading article on the outbreak of fever, says:—"The general sanitary condition of this town is bad—thoroughly bad. In some districts it is particularly so. Portions of the thickly populated outskirts have, it would appear, no sanitary arrangements at all, and are seldom or never included in the scavengers' line of march. The filth which a person meets with in the locality alluded to by Dr. Adrian is nothing short of repulsive. It is no unusual spectacle to observe before the doors of each house there stagnant pools of water that may not have been disturbed for months; or putrid heaps of refuse, that for an equal period never attracted the eye of a sanitary officer. In the few instances where this class of dwelling can boast of a back yard it is generally kept in the same condition; whilst the interior of the house is usually in harmony with its surroundings—as the presence of a goat, donkey, or pig would justify a person in believing. In addition to all this, however, there is still a greater cause for apprehension over which neither the people who keep their premises in such a deplorable state, nor the sanitary officers who so long allowed them the amplest opportunities of doing so, have the slightest control. Defective as our arrangements for the removal of surface accumulations are, our sewerage accommodation is infinitely worse. In no other town throughout Ireland of equal size, importance, or wealth, would such a system be tolerated—knowing, as everyone who understands them must, that the

majority of our public sewers are worse than useless. They are constructed on a principle that modern science condemns; they are rendered imperfect by long use; they are leaky and altogether inadequate for the purposes of a town so large as Drogheda."

#### "HONOUR TO WHOM HONOUR IS DUE."

We are pleased to see that a number of journals, English and Scotch, ordinary and professional, have warmly responded to the general desire of seeing Mr. George Godwin, the conductor of the *Builder*, receiving some mark of honour at the hands of her Majesty's Government for his life-long labours in the cause of sanitary and social improvement. We have only room on this occasion for the following creditable notice which appeared in the last issue of the *Architect*:—

"If the rumour be correct that the Government, upon taking up at length the important social questions of the reform of artisans' dwellings, and the protection of the health of the poor, desires to recognise the long and persevering services of Mr. George Godwin in that cause by conferring upon him some mark of distinction as a representative man, we feel sure that we shall be only giving expression to a sentiment which is universal in the building world, both professional and practical, and in the still wider sphere of sanitary science and philanthropy, if we take leave to say that such an act will be both just and graceful. It would be no compliment to Mr. Godwin to remark that others, his life-long colleagues in benevolent enterprise, have preceded him in public recognition without in most cases professing to have excelled or perhaps even equalled him in usefulness; but in so far as this may be supposed by his friends and admirers to have been the fact it cannot at any rate be put down to any compensating fault of his own; the journalist is generally the last to be rewarded, and perhaps it is in the nature of things right and proper that it should be so. It is not necessary that we should recall to mind the earnestness and persistency with which Mr. Godwin has pushed forward the cause of sanitary reform for nearly thirty years as the most consistent of all its pioneers. This energy of purpose, and indeed this consistency of doctrine none the less, have probably been due to the circumstance that as a professional architect, and we may say still more as a practical surveying officer of the public, not only has he had personal opportunities of observation, but he has possessed also peculiar knowledge as an expert, by reason whereof that which was with others a comparatively vague benevolence was with him a specific intelligence of definite aim. Nor was it at the best an easy task to which he devoted himself so long ago. The work has been all up hill. Where one somewhat sentimental Cheeryble would graciously approve its purpose, a score of hard-headed Gradgrinds would contemptuously pronounce it a bore if not a delusion. Now, however, it really seems as if even busy politicians were disposed at length to try an experiment in its favour; and whatever differences of opinion may exist upon the details of the measures before Parliament, it is certainly the fact that no discord whatever is heard as to the merit of their principle. If the journalist of the movement may not at such a moment be fitly remembered, and his life-long services fairly recognised, we scarcely know who can be entitled to a public compliment in these days when peace hath her victories so much more than war."

#### TO CORRESPONDENTS.

ARTIST (London).—The Irish Courts of Law, &c., the Four Courts, were commenced from designs of Thomas Cooley, the architect of the Royal Exchange; but he dying shortly afterwards, the works were continued and completed by James Gandon, who departed from the original designs. A MILLER (Maryborough).—Messrs. Lockwood and Co., Stationers' Hall-court, London, will supply a list of useful works on the subject. "The Power of Water as applied to Drive Flour-Mills, and give Motion to Turbines and other Hydrostatic Engines," by J. Glynn, F.R.S., is a useful work. There are several very good works upon the subject, and we are unable to say which is the best. ARCHITECTS IN COUNCIL.—A friend who writes on this subject is thanked. The matter is so long under consideration, we are inclined to believe it will end in nothing. The power and the purpose exists, however, with the weakness stated. A.R.H.A.—Sign your letter with your own name, and we will publish it with pleasure. If we printed it in any anonymous shape we might be accused of concocting it. The art criticism of the article alluded to is not the criticism of an artist. SPEC.—The atmosphere of Dublin is favourable to the durability of Portland and other freestones, as our public buildings testify. For broad treatment granite, however, is preferable, either for London or Glasgow. JOINTRY WITHOUT NAILS.—"A Carpenter" should examine the construction of the old staircase of the College Library.

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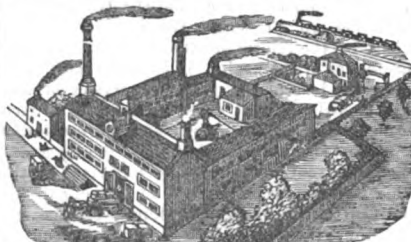
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# The Irish Builder.

VOL. XVII.—No. 367.

*The Literature of Gothic Architecture in Ireland.\**



N continuation of our subject, we will now take some further note of the opinions of James Gandon, and his review of views of others, on the origin of Gothic Architecture. Speaking of Dr. Young, whose theory of the Pointed arch we have discussed in former papers, Gandon writes:—"The ingenious Dr. Young, late Bishop of Clonfert, in the Transactions of the Royal Irish Academy, has done little more than confine himself to the theory of the Gothic arch—how far it has peculiar properties of sustaining incumbent weights under peculiar circumstances. In stating the sentiments of different writers concerning the origin of the Gothic arch, his lordship refers to Stukely, who considers

the pointed arch and slender pillar to have been invented by Abraham—an opinion that Warburton adopted in his notes on Pope's Fourth Epistle, where he calls them calf cathedrals. This idea is probably taken from the thirteenth chapter of third book of Albertius, who has these words:—"Etenim ducendi arcus rationem traxisse homines hinc puto. Nam cum viderent trabes duas junctis capitibus posse, imis pedibus divaricatus, ita fermari ut matuo innexu, paribusque contra se ponderibus sisterent, placuit inventum." Stukely had nothing more to do than to give these trabes or beams their branches and leaves, to make his patriarchal arch. In like manner the author of the History of the Gothic Buildings at Batalha [Murphy] supposes the Gothic architects attended to the proportions of the human frame. This notion is taken from the first chapter of the third book of Vitruvius, the title of which is, 'De Sacramum Aedium Compositione et Symetris, et Corporis Humani Mensura.'"

"Vasari," continues Gandon, "more than two centuries ago has given the result of every inquiry that can be made into the origin of Gothic Architecture. 'There is,' he says, 'another species of architecture which, in its ornaments and proportions, is very different from the antique and from the modern; nor is it used at present by good architects, but avoided as barbarous and monstrous, being entirely deficient in order, so that it may be called disorder and confusion. It was introduced by the Goths, who, after they had destroyed the ancient fabrics, and the architects were slain in war,

introduced arches of the fourth point, and filled Italy with this monstrous style of building.'"

In quoting Vasari we may be pretty sure that James Gandon (from what we have already said in our last paper) did not subscribe to his views, but merely adduced them in a review of his subject. Gandon was too able an architect, and too conscientious to condemn *in globo* by one sweeping assertion Gothic Architecture as a "monstrous style of building." According to Parker, in his "Glossary," the term Gothic "was originally applied to the mediæval style at the time of the Renaissance of the Pagan Orders; some say it was given by Sir Christopher Wren, but it is now believed to be much older than his time. In any case it was given as a term of reproach and contempt at a time when it was the fashion to write Latin and to expect it to become the universal language. But the different nations of modern Europe have retained their respective languages [Ireland has not] in spite of the efforts of the pedants of the sixteenth century, and have now generally returned to their natural styles of architecture also. The one seems to follow naturally from the other; if the Roman language could neither be preserved everywhere, nor effectually revived, so also the permanent establishment of the Roman Architecture was not to be expected. The marvel is that modern Europe submitted so long to its trammels."

We quote the passage from Parker here by way of illustration, and will now continue Gandon's remarks:—"I must, however, observe that Dr. Ledwich has disapproved, in a very satisfactory manner, the Goths being the authors of the style, though it certainly originated in the dark ages, and however slight may be held the opinion of that great man, Sir Christopher Wren, as to the Gothic style being of a Saracenic origin, there is every reason to believe that his observations on the subject are not without foundation, and the annexed print, I consider, will, in a great measure, serve to illustrate Sir Christopher Wren's opinion."

Before proceeding further with Gandon's remarks, we will refer to the "Parentalia" of Sir Christopher Wren. In that great architect's Report to the Bishop of Rochester on the State of Westminster Abbey, we find these curious remarks:—"This we now call the Gothic manner of architecture (so the Italians called what was not after the Roman style), though the Goths were rather destroyers than builders. I think it should with more reason be called the Saracen style, for those people wanted neither arts nor learning; and after we in the west lost both, we borrowed again from them out of their Arabic books what they with great diligence had translated from the Greeks."

The whole of Sir Christopher Wren's report is well worthy of perusal, even at this day. He certainly was no lover of Gothic forms, though he did not disdain to press it into service in some of his London churches and other buildings when he thought fit. In illustration of Sir Christopher Wren's opinion, Gandon proceeds:—"The drawing from which the print is taken was given to me by that truly-esteemed artist, Mr. Daniel, whose illustrations of the architectural buildings of India do him much honour. The print represents the entrance to a Hindoo temple; the antiquity is so very remote that the time cannot from any authority be ascer-

tained. It is cut out of a granite rock, and dedicated to Mahudeva; it is situated near Eya in Bahar, East India. The arch is not only pointed, but also decorated with quatre-foil between the mouldings, and it is only substituting angels and saints, instead of the elephants, and it may be adopted for an entrance to a cathedral. It may be suggested that this strong illustration has not been in after periods of Asiatic architecture resorted to, but many reasons have interfered; it may have been thought too sacred, and were even this inference incorrect, the style was surely sufficient for an ingenious architect to emulate and indulge his fancy in forming a new style of architecture. There appears additional circumstances in support of these conjectures, for in the Asiatic Researches in Chambers' Account of the Ruins of Mavalapuram, they evidently assimilate the Gothic taste, being surmounted by arched roofs composed of two segments of circles meeting at a point, &c. And Fra Bartolomeo relates in his voyage, 'There have existed Christians from time of the martyrdom of St. Thomas on the coast of Malabar. The missionaries visiting this place, who were skilled in drawing, might have brought specimens to Italy, &c., and, as the architects were chiefly priests or monks, they might have preferred this style of building to that of the Greek or Roman, as deviating from their temples, and being more impressive to their ideas of Christian worship.'"

Gandon goes on to describe the rise and progress of modern Classic Architecture, and the fine arts in Ireland, towards which, as a practising architect, he contributed much. He describes the old Tholsel or corporate building that existed in the last century in Skinners-row (now Christ Church-place) as a building "in the style called King James's Gothic; yet from the largeness of its component parts, it possessed a picturesque appearance, and was the first noble work in Dublin that was decorated with statues, having one of Charles II. and one of James Duke of York" [James II.].

Speaking of the Royal Hospital at Kilmainham, he says:—"Whoever was the architect of this building, it would be desirable to have it recorded; for, though it certainly possesses no merit to justify the superior hand of that great master to whom it is attributed [Inigo Jones], it evidently claims the originality of this having been the first specimen of regular architecture in this country." The Royal Hospital is claimed with more reason to have been the work of Sir Christopher Wren, and many historical matters favour the supposition, apart from the positive proof. Inigo Jones died upwards of thirty years before the commencement of the building.

An engraving of the old Tholsel will be found in Malton's "Views of Dublin," which will afford the reader an idea of its style, which shows very little Gothic features, though Malton describes it as a sort of Gothic. It was fashionable towards the latter end of the eighteenth and the early years of the present century to run down the Gothic style, and sometimes its greatest detractors knew the least about its history or details. Gandon, however, can be credited with a respectable knowledge of his own art, and in his strictures he only exhibited the prevailing weakness that characterised the critics of his day on the subject of the Gothic style as apart from the Classic school.

\* See ante, p. 73.



Speaking of architecture in general, Gandon said:—"That public or national works should differ from those of private dwellings, must be evident; the latter do not require that strict attention to the rules of art, yet the fancy which may range in their composition should be restrained by judgment, so as not to wander from the original principle which taste and culture have already established. Those acknowledged laws of improved art are surely models sufficient to restrain the practitioner of architecture from running into Gothicism and incoherence for the sake of novelty, too much the fashion of the present day." In a foot-note to his paper at this point Gandon adds:—"How much these facts are exemplified may be seen in most improvements now in progress in various parts of the metropolis of London. Columns that were intended to support superstructures are inverted; the base to sustain the weight is placed at the top, the diminished top is at the bottom; square bandboxes are united to columns, as at Warren Hotel, Waterloo-place [London], where all these incongruities are to be met with and many others." Whether this hotel building exists in London now we are unable to say, but we can safely assert that more strange incongruities in Classic and Gothic, or in both styles mixed, are to be met with in the London of our day. Gandon, as we stated in a former paper, died before the Gothic Revival took place. The only incongruity ever perpetrated by him in his architectural works was the designing and putting up against his will, the eastern portico of the Irish House of Parliament. The portico to the entrance to the House of Lords, facing College-street, is supported by Corinthian columns, the entablature of central portico and main building being in the Ionic, which is continued round the former. Withal, Gandon's portico is a noble one, crowned by its pediment and three statues.

There is a paper in the first volume of the "*Anthologia Hibernica*" entitled, "An Examination of Bishop Warburton's Account of the Origin of Gothic Architecture." We have a strong suspicion that this paper, which is signed H. D., was written by Dr. Edward Ledwich, the initials being the last letters of his Christian and surname. The same initials occur pretty often through the volumes of the *Anthologia Hibernica*, sometimes reversed as D. H., and at other times either one or other of the single letters. The *Anthologia Hibernica*, which was established in 1793, and continued for two years (four volumes) we know now was established as the organ of a disinterested antiquarian section of writers, headed by Ledwich, who seceded from the *Collectanea*, edited by Vallancy. Apart from this fact, however, it was a clever and creditable Irish periodical, and performed some useful service. It is getting rather scarce now, and no well-selected Irish library is complete without it.

In our next paper we will give the result of H. D.'s examination of Bishop Warburton's theory of the origin of Gothic Architecture, along with some other views of native writers before and since the "Revival" took place in Ireland.

A handsome font, designed by Mr. Thomas Drew, has been placed in Lucan Church. It is a memorial to the Rev. H. Stewart, M.A., late Rector of Leixlip. It has been executed by Mr. A. Sharp, Great Brunswick-street.

#### NOTES OF OVERLOOKED GENIUS AND ENTERPRISE IN IRELAND.

PASSING through the Counties of Kildare and Kilkenny in the year 1793, on a return journey from the South, a traveller took the opportunity in visiting the mountains or hilly districts in which were situated the collieries of Castlecomer and Doonan. Apart from his notes on the physical geography of the districts visited, the writer brings under our notice the names of two men—the first an engineering and mechanical genius, and the second a linguistic one, any mention of whom we do not remember to have met with elsewhere. Some account of the life of the former of those two would be strictly in its place in Mr. Samuel Smiles' "Self Help," or his "Lives of the Engineers."

It appears from our traveller's notes that, from the depths of the coal-pits on the lands of Doonan and Clogh, great quantities of water were collected in them, from whence it was discharged by means of an improved steam engine. This, though originally constructed by Boulton and Watt, "is still more improved by the present ingenious engineer, Mr. Fenlon, whereby the power has not only been considerably augmented, but the quantity fire much reduced, saving above one-third of coals necessary to those engines of the original patentees. The engine at Doonan works 19 strokes in a minute, raising a quantity of water equal to 16 hogsheads in an hour, or 96 tons in 24 hours, from a depth of 54 yards." Our traveller speaks of Mr. Fenlon as "one of those *élèves* of Nature who ornament every country where they are found. A native of the soil, without any education, by the effort of genius only, he has not only made himself perfect master of mechanics and steam engines in general, but most parts of the mathematical and philosophic science. He constructs the engine in most material parts himself, as casting the tubes, turning the rods, &c. He has also contributed one on the same principles in the North [Ulster], and at present is employed on, and has nearly finished, a small steam engine for the purpose of working boats on canals, &c. The simplicity of this construction, the small space it occupies, and the inconsiderable quantity of coals necessary, with velocity of motion communicated, is really astonishing. When completed, he intends applying to Government for a patent, who will undoubtedly use every exertion for the encouragement of an invention of such universal utility to the public."

It would be worth while searching whether the Irish Parliament, between 1793 and 1800, were asked for a patent, or whether any further action was taken in the matter of Mr. Fenlon's inventions. Between the elder George Stephenson and Mr. Fenlon there appear some marked points of similarity. Both worked at coal mines, and up to his seventeenth year Stephenson appears to have acquired no education, and it was only after that age he attended a night-school to learn to read and write. Notwithstanding he shows a decided mechanical bent of genius, and was in the habit of taking the engine of which he had care to pieces, for the purpose of mastering its details of construction. Success, we are all aware, crowned the humble pitman's labours in his invention of the steam locomotive, and as the great pioneer and constructor of the modern railway system. What might not

have been the results of Mr. Fenlon's labours at a period when Mr. Stephenson was but a mere child, had he received the encouragement his genius and talent deserved. Had Mr. Fenlon's lot been cast in England instead of Ireland, his abilities would have been availed of in a different way, and his name would probably be now found among other benefactors of our race noticed, at length, in our cyclopedias and among the lives of our engineers.

Our traveller in 1793 thus speaks of the second remarkable local celebrity which he came across on the mountains:—"These hills indeed seem no less prolific in the faculties of the human mind than in their mineral productions, for besides the person before mentioned there is living among them on his native soil a Mr. Farram [perhaps Farron or Farren] perfectly blind, who, by the effort of genius only, has obtained a perfect knowledge of the French, Latin, and Greek languages, mathematics, and natural philosophy, and is an able performer on the violin, which he plays with great accuracy."

A few notes from our traveller's description of the mining resources of the district and the features presented in 1793, may not be out of place. He says—"In the eastern district, called Brenan, runs a number of rich copious mines. From the remains of various shafts it is evident these mines have been wrought in some, perhaps, remote period, as no tradition is now remaining of their even having been open. When wrought, it is probable the ore was not smelted on the spot but removed to some distant part, as there are no remains of any furnace having ever been erected. From the quantity and quality of the ore, these mines seem to merit the attention of the mineralogist, and if the neighbouring turf and coal could not be charred to answer, a branch of the Royal Canal extends within six miles of the place, whereby an easy conveyance might be had not only for the produce of the mine, but for such materials as would be necessary for their manufacture. On the eastern declivity of the ridge are a number of coal mines, from 27 ft. to 12 fathoms below the surface, and covered with argillaceous and yellow ferruginous rock, and a bed of black micaceous slate. In the southern ridge from Doonan no coals have yet been discovered, but on the western, or Maraghic, ridge, belonging to the lordship of Castlecomer, coals are found from 6 ft. to 4 fathoms."

Our traveller says that on entering the lands of Clogh and Doonan the ground is fertile, and the coal dips to 20 or 28 fathoms, being from 20 in. to 8½ ft. in thickness, running in a direction nearly parallel to the horizon. The following extract is interesting:—

"Here, at about 12 fathoms beneath the surface is found a rock of win-stone [whinstone] resting on a stratum of columnar basalts, perpendicular to the horizon. The columns are from two to six feet in length, the articulations from three to six inches, forming both convex and concave joints of an irregular pentagonal figure, whose sides or different joints are plain convex and concave." [Similar features are to be observed at the Giant's Causeway.] "These columns in several places rest on a light-grey ferruginous rock or win-stone, on a slatey rock, beneath which is a vein of rich iron ore parallel to the horizon, from one to three inches thick. Under the iron is a stratum



of slate and then the bed of coal. Beneath the bed of coal is a soft micaceous slate stratum, 10 to 12 fathoms deep, and under that hard rock through which no one has yet bored. The miners think that the great or principal bed of coal lies beneath this rock, at about 50 fathoms from the surface."

It is probable that but for the disturbed state of this country, the breaking out of the rebellion in 1798, and the Union that quickly followed, many of our industrial, mineral, and other resources would have been developed by the Irish Parliament. The Dublin Society, for some years previous to 1800, through its publications and its officers, was directing and assisting in different quarters towards the development of our mineral resources, and strong hopes were entertained that coal would be raised in the neighbourhood of Dublin in connection with other products. Long years, however, have passed away, and the large mineral wealth and other resources pointed out by Ruttly a century ago, and by Sir Robert Kane and others in the present century, remains yet unutilised.

#### "AN AERIAL BRIDGE."

THE great engineering work under this name (though correctly speaking it cannot be called an "aerial bridge"), is about to be executed at Lyons. It is an iron bridge to connect the plateau of Fourvières with that of the Croix-Rousse, which are two heights, like that of Montmartre in Paris, at a distance of 300 mètres from each other. *Galvani* says:—"This undertaking is estimated to cost 2,800,000 f., of which a subvention of 600,000 f. only is asked from the city. This aerial bridge will consist of three spans, the central one of 135 mètres, and two others of 70 mètres each, resting on open iron columns in a line with the houses on the quays. The platform of the bridge will be 65 mètres above the road, and nearly 50 mètres above the houses. Each of the two central columns will have inside a lift by which pedestrians will be raised in two minutes, at a charge of ten centimes, to the top, whence they may reach the higher parts of the city, where they may have business." What next? Give me a prop, a position, and a lever, said Archimedes, and I will move the world. We will not be surprised to see before we shuffle off our mortal coil the resumption of the building of Babel on the part of our modern engineer.

#### "NUTS FOR THE CITY FATHERS."

MR. Joseph T. Pim, in a letter in reply to some strictures of a daily contemporary on "The Local Government (Ireland) Bill," takes occasion to put the following pertinent queries, which are none the less to the point, though they have been put several times by ourselves in those pages:—

"But what has the Town Council of Dublin, whose merit in your eyes is that it represents the poor, done for the poor in Dublin? I assert that it has neglected their interests. It refused to permit the opening of Stephen's-green as a people's park. It refused to convert the disused city basins into people's baths. It has done nothing to provide decent public markets where the poor may buy their meat and vegetables. It has done nothing to provide free libraries, where the industrious artisan may acquire the knowledge wherewith to raise himself in the social scale. It allows slaughter-houses and other noisome places to exist in the heart of the city, polluting the air and endangering the public health. And while it but feebly conducts the paving and scavenging of the main thoroughfares, it does little to promote the cleanliness and salubrity of the back streets and lanes and courts, where the poor of Dublin chiefly dwell. My great reason for desiring a reform of the municipal franchise in Dublin is in order to obtain a Town Council that

will devote more of its attention, its time, and its resources to the interests of the neglected poor of Dublin."

#### CIVIC LYRICS.—No. LXXXII.

##### THE REIGN OF MAC.

*Sanitas, Sanitatum, omnia Sanitas.*

In the olden time (at least it will  
Be olden when we are dead)  
The City was famed, and it is still,  
For its mighty Civic head.  
Our skies were bright and our river clear,  
And our streets, both front and back,  
Were cleansed ev'ry day throughout the year—  
But then 'twas the Reign of Mac.

Few public fountains were needed then,  
For the Liffey ran on bright!  
The people longed for its waters when  
They could drink it morn and night!  
No sewage matter befouled its stream,  
Or turned its surface black;  
The Health of Dublin was then supreme—  
But then 'twas the Reign of Mac.

Our Ruler wore a collar of gold—  
'Twas marked with a quaint "S. S.";  
Those grand initials—at least I'm told—  
Meant all that they could express.  
He lived for Health, and died for the same—  
Oh! would that those days came back!  
The rose smelt sweet with its own sweet name—  
But then 'twas the Reign of Mac.

Men sacrificed all for Public Health,  
And water and drainage plans;  
Each one in office did good by stealth—  
It is clear to him who scans.  
None robbed Peter to pay unto Paul,  
And statues were nowise slack,  
For public spirit moved one and all—  
But then 'twas the Reign of Mac.

CIVIS.

#### HOW THE SWEEPER GOT SWEEPED.

THE Dublin public have long rested in the comfortable self-complacency that they, above all other persons on the earth, enshrine in their own minds all the wisdom, both spiritual and worldly, vouchsafed to mortal man; that in their customs they are the most knowing, the least artificial, the most cordial, and the most exemplary of persons; and that in the decent performance of all life's duties, they, and they alone, know and do that which tends most to insure the general welfare of themselves, and the generation in whose midst they exist.

The Dublin public possess no prejudices—never did—or, if indeed one should have escaped the lynx-eyed scrutiny of your correspondent, it must have been nurtured in such close proximity to their virtues that, if the difference between them cannot be detected by one constantly in their midst, it is not likely that any vagabond social detective can make so tremendous a discovery. And then the Dublin public are so independent, you know, that without the slightest approach to ostentation they can boast—aye, and do, too, and that in no monosyllabic phrase—of their great integrity, of their unbending spirit to the merely external advantage of worldly follies; they look to the man and not to the man's pocket.

Unfortunately for the Dublin public, however, their year of office in the evening of the nineteenth century has been cast amongst a nation stamped with the mint-mark of Utilitarianism, and keener wits in matters financial have usurped the territory once occupied by the refined yet simple-minded dwellers by the Poddle. Mr. Public, as well as Mr. Public's pocket, has suffered, that the use of external follies may be turned to good account. Three storeys of insult have been erected on a basement of injury.

But to descend from the romantically sublime to the convulsively ridiculous, to partake of "Guinness" with the multitude instead of nectar with the gods, several pretty well-known wearers of the ponderous hirsute covering known within the hallowed precincts of the Four Courts as a "wig," have lately been fetched before the officiating "beak" at the Southern Divisional Police Court, and mulcted in various penalties for having col-

lected vast quantities of liquid Macadam upon their door-steps, as some men collect fossil bones, not because it is of any absolute use in itself now, but because it is the remnant of a thing which, in former days, has been accounted so.

Now there is no great hardship in paying a florin for permission to indulge in undisturbed filth for a twelvemonth. Dirty pavements would be literally dirty cheap at the price. The real hardship being imposed on those who live in one's neighbourhood, and who, unlike one, insanely liquidate those intricate triumphs of simple addition with which their external decorator makes a point of favouring them, when performing that difficult piece of counting-house gymnastic known as balancing the books. But then there is, as an idiotic poet some time ago informed mankind, to every rose its attendant thorn. There is an air of unpleasantness pervading the entire transaction, whether it is the florid-visaged and blue-coated lictor who knocks at your front door as though the muslin curtains which decorate your windows were being reduced to ashes, and after furnishing you with his opinion on the weather, claps a blue paper into your outstretched palm, and then seeks to provoke a breach of the peace by the fiendish grin which he assumes as he waddles off from your unwashed, yet highly respectable—nay, fashionable pavement. The attendance on Saturday "at 12 in the noon," the solicitude, once you are in the presence of "his wash-up," as the lictors style him, lest you should not feel the full benefit of your *chapeau* on the occasion of your exit into the salubrious neighbourhood of Greek-street. How one shudders at the "Young feller, remove your hat!" of the pugnacious member of the "C" division to whose care the friendly portal is confided. How you slink from the witnesses' "pew,"—where you have located yourself in the vain hope the Mr. General Public will regard you as some generous philanthropist who has come there, in the interest of society, with the special intention of exposing the vileness of some of the cut-throat-looking ruffians who skulk in the vicinity of the dock, conversing in low whispers with their ill-favoured female companions,—upon the clerk calling from the list of *sanitary offences* the name of "Snooks." How you wonder at the rapidity with which it passes from mouth to mouth till it is finally bawled into the street after being metamorphosed into "Mokes." Then you shuffle into the dock, and the "beak" regards you with a look of high displeasure, while "the sergeant" bestows, in the most business-like manner possible, a kiss upon the Book, after doing which, he describes your offence and furnishes you with elaborate comments thereupon. You begin to speculate respecting the probable "weight" of the prosecuting lictor, and think how nice it would be if you could only obtain the permission of the court to "go for" him, there and then, but you are disturbed, when in the middle of a most intricate pugilistic calculation, by the "beak" addressing you in terms at once explicit and polite, and who, when you try to mouth some impossible "extenuating circumstance," interrupts you with a careless "can't help it," and your eyes follow the motion of his pen as it traces "Two-and-sixpence, or seven days."

"Two-and-sixpence, or seven days!" Pshaw! you are one who has no slavish regard for wealth, and yet, though your back be as broad as a table, and as lithe as a cane, you must admit that you have often puckered your big cheeks into a reverential grin, and stooped to kiss the very heels of the go den calf whenever it was set up before you. You have done this, and blush not; and after performing it, you have straightened yourself up, wiped your lips with the cuff of your "West-end," looked magnanimous, damned the fellow that regards money, kept dirty pavements, and after all, find that your idolatry is a profitless speculation when you hear the officiating magistrate pronounce the legal alternative of "Two-and-sixpence, or seven days."

OLYMPUS.

B

PUBLIC RIGHTS AND PUBLIC  
NUISANCES.

## TWENTY-SIXTH ARTICLE.

## ADULTERATION OF SUGAR, CONFECTIONERY, ETC.

THERE are several varieties of sugar, such as cane sugar, fruit sugar, grape or starch sugar, milk sugar, &c., but the first variety is the best known. In Canada and in different parts of Europe the sugar maple and the beetroot furnish the chief supplies. Beetroot sugar is manufactured in large quantities in France, Prussia, and Austria. It was during the wars of the First Napoleon that the manufacture of beetroot sugar was called into existence, the ordinary colonial supply being then cut off. A few years ago in Ireland the manufacture of beetroot sugar was started at Mountmellick, and continued for some time with partial success. We cannot help thinking it was through very bad management the manufacture collapsed. We have ourselves used the Irish as well as the foreign beetroot sugar, and found the first of a fair quality. The sweetening power of beetroot sugar as manufactured is not so great as that of the cane species, but we think this is owing to the process of refining adopted. The beetroot is capable of yielding a sugar with greater sweetening power with different treatment. Sugar forms an important article of food, entering largely into all vegetable aliments. By itself it does not appear to be capable of supporting life for any great length of time, though it could be used as a temporary palliative to hunger. When mixed with nitrogenous matter it seems to have a fattening tendency. It has a powerful antiseptic power, as shown in the preservation of meat and fruit and other substances. Brown and loaf sugar, when derived from the sugar cane, are the same chemical substances. According to Doctor Wanklyn's analysis, the ordinary loaf sugar of commerce is a generally pure article, free from mineral and nitrogenous matters, but brown sugar, which is usually used by the poor, is not by any means so pure as loaf sugar. Even in its tolerably pure condition it contains a certain proportion of mineral matter derived from the plant. The detection of actual adulteration of sugar by mineral matter, such as sand is, in the opinion of Dr. Wanklyn, very simple. All that he thinks is required is to take the ash, and any real case of adulteration will be manifested by the finding of a far higher percentage of ash than could be due to the mineral contents of the juice of the sugar cane or beetroot. The specific gravity of sugar is 1.606, its solubility in water being extraordinary. At common temperatures 100 parts of water dissolves 800 parts of sugar, whereas 100 parts of water will only dissolve some 18 parts of common salt. In boiling water the solubility of sugar is, of course, much greater than in cold. Sugar has some remarkable peculiarities, one being the heaviest organic compound which is devoid of iodine and metals, and contains only the organic elements. Independent of adulterations sugar has its impurities, and it has its insects as well as other substances. The sugar insect is found in raw sugar, but not in refined. Microscopical examination is recommended where there is reason for suspecting the presence of these insects, but it has not been determined, as yet, whether the sugar insect presents any greater danger in connection with sugar than mites do in connection with cheese. Moist sugar is contaminated with uncrystallisable sugar which is determined by adding to its solution some sulphate of copper and caustic potash, and boiling for a few seconds, when there will be an abundant reduction of the copper solution. The difference between loaf sugar and brown sugar in this respect will be found to be striking; of the principal adulterations and impurities of sugar, the following may be enumerated—chalk, sand, clay, starch sugar, flour, dextrine, plaster of Paris,—the impurities being, fragments of cane, molasses, vegetable albumen, and, as already stated, sugar mites or *Acari*.

Good sugar will not have a bitter taste, and will dissolve completely in water. Pure loaf sugar will give a colourless solution, and good brown sugar a clear but coloured liquid. If the mites are present they will float on the syrup like small specks, and, if needed, can be removed for microscopic examination. In connection with sugar it will not be amiss to say something about honey, for it has similar properties to that of sugar. It is found in large quantities in a number of vegetables, and is, as generally known, collected by different kinds of bees, from flowers. It is not, however, a purely vegetable production, for after being collected by the insect, it passes through a variety of changes before it passes into the honeycomb. Honey differs much in colour and consistence, and contains a large quantity of saccharine matter with some mucilage; it ferments readily, and it yields a vinous liquor termed mead. There are two varieties of honey—one yellow, transparent, and of the consistence of turpentine, and the other white, capable of assuming a solid form. Honey is the production of many countries. In the woods of North America considerable quantities of honey are produced by the wild bees.

On the Continent and in Great Britain honey is much used in making preserves and confectionery, and in its natural state it is put upon bread. It is also used as a medicine, and in connection with medicine to prevent or relieve hoarseness, catarrh, &c., and externally to promote suppuration. In its clarified state it is used to sweeten certain medicines, and it is more aperient and detergent than sugar. It is accounted particularly serviceable in promoting expectoration in disorders of the breast. It is often mixed with vinegar for these and other like purposes, and boiled down to a proper consistence over a slow fire, when it forms the oxymel of commerce. Honey for long ages has been considered one of the first articles of human nourishment. Some curious notions were entertained by the ancients in regard to honey. Many learned writers did not seem to know where it came from, as they thought it fell from heaven like the rain. Pliny even was unable to decide whether it descended from the heavens generally or from the stars, or was a juice formed by the purification of the air, and afterwards collected by the bees. However, in all the works of the ancients much importance was attached to honey and the care of bees. The ancient Irish appear to have bestowed an equal care on bees, for by the Brehon Laws we have proof that bees were considered a most valuable part of the property of our early countrymen. The Brehon code ordained—“Whoever plunders or steals bees out of a garden or fort is subject to a like penalty as if he steal them out of a habitation, for these are ordained of equal penalty by law.”

And again: “Bees in an enclosure or fort are of the same account (as to property, penalty, &c.) as the wealth or substance of an habitation.” The most wholesome kinds of honey are those derived from the genus *Erica*, heath or heather honey, and from most labiate plants. In speaking about the *Erica* or heath plant in Ireland, Rutt, in his “Natural History of Dublin,” writes:—“The flowers are sometimes fed on by bees, and are very grateful to them, and supply great plenty of honey, which is said to acquire a reddish cast on their plentiful use of them.” In another portion of his work he speaks again of the heath:—“The flowers are very profitable for bees for filling their hives in autumn. They get more honey from this than from other plants, though the honey has a reddish cast and is least esteemed.”

To what extent adulteration may be practised in the various preparations of honey we are not aware, but it is quite possible that honey, like the many other articles of which we have treated, is not free of sophistication. In the manufacture of bon-bons, sweets, and confections in general, honey is, we think, used very sparingly, and bad or inferior sugar in large quantities. The colouring

matters used in confectionery, some though quite harmless, others are not only highly injurious but poisonous. Bon-bons, unless when mixed with harmless starch or injurious white or coloured mineral powders, produce clear solutions when dissolved in water. It is recommended in one of our Manuals of Public Health if any insoluble residue be left, the deposit should be allowed to settle, the liquid poured carefully off, and the powder collected, dried, and heated on a platinum foil. If white, and wholly combustible and rendered brown or blue on treatment with a very dilute tincture of iodine, it consists of starch, chromate of lead (yellow), arsenite of copper (green), china clay and gypsum (white), and most other injurious mineral pigments give insoluble and fixed powders. Sulphate of mercury or vermilion, though volatile when heated on a platinum foil, is easily recognisable by affording a heavy red powder on treatment of the “sweets” with water, and this powder, when heated in a test tube with “bread soda” yields the well-known globules of metallic mercury.

There are immense quantities of “sweets” of all kinds consumed by the young of both sexes, and adults are not free from a fondness for sugarstick, bull’s-eyes, “taffy,” and sugar-plums. The eating of sweets does not improve the teeth of aged or young, and they should be given very sparingly to children, even when of a tolerably pure quality. It is said, in Ireland, that real tea-drinkers do not like sweet tea, but we have known in our experience great tea-drinkers who did not care for tea unless they could taste the sugar in it, and who also preferred to take their tea without sugar than without milk.

Brown sugar at all prices is adulterated, and we are quite safe in asserting that the most of what is purchased by the working poor is greatly adulterated, and with more dangerous substances than what we have enumerated above. Sand is an old adulterant and a heavy one, and there are *weighty* reasons for using it. The Adulteration Bill now being pushed through Parliament will be a failure; and unless the medical officers of health and the sanitary officers vigilantly perform their duties, adulterators in *globo* will have a new lease of life, to the plunder of the public, the destruction of human life, and the great discredit of sanitary legislation.

THE ROYAL ARCHITECTURAL  
MUSEUM (LONDON).

At the last meeting of this body, Mr. F. A. Skidmore, a well-known art metal worker at Coventry, delivered a lecture on “The Use of Gold in Ancient Architectural Enrichment, and its Influence on Conventional Forms.” The audience were chiefly art workmen. Professor T. Hayter Lewis occupied the chair.

In the course of his remarks, Mr. Skidmore said that architects took credit for accomplishing great things when they were simply working in the past in copying what they found in existence. He maintained that this should not be, for architects little know what was the motive which dictated all the various forms which they worshipped. He considered that architects should be constructors in the true sense of the term, or else go farther back and re-produce what was done by the workers in gold. Mr. Skidmore exhibited a large collection of examples, showing the constructive necessities of metallic treatment, tracing the identity of these with the stone carvings of various ages. He pointed out that the natural forms of the Decorated and Perpendicular Periods in metal received their conventional lobes and treatment from the hammer of the goldsmith, and were again repeated in stone carvings, the glorious shrine of interiors being re-expressed on the exterior of edifices. To so great an extent, he said, was this principle applied that the original *jewel* in metal

settings was profusely used, and styled the "ball flower." He urged that the eternal copying was a great mistake. Architecture at the present day was a failure, and that simply because it revolved itself, with architects, into a question of various old styles.

At the conclusion of the lecture, the chairman proposed a vote of thanks to the lecturer, remarking that Mr. Skidmore, being a goldsmith, spoke from a goldsmith's point of view, but they could not look at any of the forms of architecture without observing that they might have been elaborated in the way the lecturer referred to, many of which, he said, owed their origin to the goldsmith. In conclusion, Professor Lewis paid a high compliment to the liberality of the Goldsmiths' Company in regard to furthering the objects and desires of art workmen.

The Goldsmiths' Company's competition drawings were exhibited, and excited much attention.

On Saturday next, April 3rd, the next lecture will be delivered by Mr. William Brindley, on "The Carving of Natural Foliage."

### SANITARY IMPROVEMENT AND WORKMEN'S DWELLINGS.

In our issue of February 15, we expressed a wish that the operations of the Home Secretary's Artisans' and Labourers' Dwellings Bill would be extended to Ireland and Scotland. Since then the King and Queen's College of Physicians and the Dublin Sanitary Association have petitioned for the extension of the Bill to this country, and the member for the University had proposed an amendment in favour of the application which Mr. Cross has adopted, with the alteration of 25,000 to 10,000 in respect to the population of towns where it should operate. Mr. Ronayne moved that the Bill should apply to towns with 10,000, and Mr. Smyth moved, but too late, that 12,000 should be the figure. Several Irish members contended with some reason that the fixing the number at 25,000 would practically make the Bill inoperative. Mr. Cross, however, would not consent to the amendment of 10,000, so thus the power of the Bill in doing good service in this country is seriously diminished. The Government had a very small majority, and it is to be hoped before the Bill is passed that it will receive a further consideration as to its applicability to towns in this country. A strong case, it must be admitted, was made out in favour of Ireland, where the Bill as it at present stands would affect only five towns; and every honest man must admit there is a glaring need for the operation of the Bill in many parts of this island.

With the defects in the Bill as regards the exempting of London from the operation of the Act, leaving its civic authorities to carry out their own improvements, while the metropolis at large will have to contribute to the general fund—perhaps it is outside our province to dilate upon. We do, however, think that is most unfair that the City of London, the richest part of the metropolis, is not called upon to contribute its share. It is no answer to say that the City of London spends vast sums of money for improvements—for bridges, the opening of new streets, and other matters. The City authorities of London have, from time to time, demolished a large number of the houses of the working classes and the poor, forcing them to remove a great distance from the centres of their employment. The sites of these demolished houses have been sold for enormous prices,

and palatial offices and chambers erected thereon. All these improvements are in the long run proving invaluable investments, and the metropolitan ratepayers, knowing such facts, have good reason to feel aggrieved.

Leaving our English friends to fight their own cause, and looking at the general tendency of the bill, we must say it has our heartiest support, though it betrays its permissive character to a dangerous extent. It must be strengthened in several clauses, so that the Home Office, and the Local Government Board through it, may be enabled to put a pressure on the local authorities. We have known heretofore, and know now, that the medical officer of health cannot act an independent part, save at the risk of annoyance and even dismissal, if he honestly reports the unsanitary condition of districts under his supervision. There will, of course, be found some upright and independent medical men whose social position, apart from their office, will enable them to despise the covert threats of their masters in the urban and rural sanitary boards. But what a number have we not of ignorant, thick-headed, and self-willed guardians of the poor and town councilmen throughout this country—aye, and in this very city,—and some of them the owners of the worst and vilest description of house property. Sanitary inspectors will be cautious of reporting the unsanitary state of their employers' house property, and consequently in many cases the medical officer of health will never hear of the evils abounding until a fatal epidemic breaks out. Then there will be a splash and a splutter, and a make-believe show of vigilance. Ambulances will be provided for the dead at the eleventh hour, instead of for the stricken at the first hour, and temporary hospitals will be erected when the epidemic has nearly exhausted itself. It has always been thus in this city; and unless the Artisans' Dwellings Bill and the new Public Health Bill are made more stringent in many of their clauses, we cannot expect to see a decided sanitary improvement.

The medical officers of health must be put upon a more independent footing, if they are to do honest duty under the Artisans' and Labourers' Dwellings Bill. The work they are expected to report upon might perhaps be done by a Government inspector. It will be found, no matter how strongly and earnestly medical officers may report to their respective boards, many of these boards will turn a deaf ear, and, as a consequence, "rookeries" will continue to exist, and improved dwellings will be few and far between.

We are inclined to give the present Government credit for their intentions, but we cannot but observe that the same mistakes have been made in the sanitary measures brought in by the present Government as were made by the preceding. In our last issue we alluded to the defects that characterise the new Public Health Bill, where the word "may" should be substituted by the word "shall," the positive taking the place of the permissive. As in the Elementary Education Act, so in our Sanitary Acts, compulsory measures need to be adopted. We may not succeed in making men personally clean no more than moral by Acts of Parliament, but we can at least enforce measures for the preservation of the public health.

Apart from what we have written, we are pleased to see the extension of Mr. Cross's Bill to Ireland, believing that if it only effects

a small benefit in its present shape, it will be a farther step onward of improved sanitary legislation that the Government must of necessity supplement before long.

### THE PROPOSED NEW SCHOLARSHIP.

In his prefatory remarks to the recently published report of the Amalgamated Society of Carpenters and Joiners, the General Secretary says:—"We are desirous of offering every possible facility to those who desire to develop their ability as workmen, and in the hope that a stimulus may be given to those who are desirous of self-improvement, our Executive Council have decided to ask the members by their votes to sanction the establishment of an annual scholarship of one hundred guineas in connection with the technological examinations instituted by the Society of Arts in conjunction with the Science and Art Department. The scholarship to be awarded to the member of our society most proficient in architectural drawing, building construction, and the practical application of scientific principles to the trade of a carpenter and joiner; subject to conditions to be approved of by the Council of the Society of Arts, and the Executive Council of this Society. It has been suggested to the Council that the amount could be more advantageously divided into three or more smaller prizes, so as to create a more lively interest and closer competition. Any other suggestions which may be received will be most carefully considered. The council are not desirous of enforcing their own particular suggestion; they desire, with your consent, to devote the amount which has been named in such a way as shall, after mature deliberation, be found best calculated to develop the latent talent possessed by our members, and to increase the attractions of our society, by encouraging those who desire to acquire information, and to raise themselves by their own industry and ability."

This body now numbers 18,817 members. It had, at the end of last year, the sum of £41,264 4s. 6d. in hand. In Dublin it has 92 members, and in Belfast 170.

### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At a special general meeting of members only, held on the date of our last issue, under the presidency of Sir Gilbert Scott, R.A., the question with regard to the award of the Royal Gold Medals, the Soane Medallion, and other medals for the year 1874-5, was considered. After a lengthened discussion, it was resolved that the Royal Gold Medal be awarded, subject to her Majesty's gracious sanction, to Mr. Edmund Sharpe, M.A., Fellow, in recognition of "works which he has produced tending to promote and facilitate the knowledge of architecture."

The Soane Medallion (with the sum of £50, under the usual conditions) was awarded to the author of drawings distinguished by the motto "Soane"—Mr. Hilton Nash, London.

The following gentlemen also received awards for their drawings:—The Institute Medal to William Scott, London; a Medal of Merit to A. Taylor, London; a Certificate of Honourable Mention to R. Haines, Oxford; the Institute Silver Medal, with £5 5s., to James Crocker, Exeter; the Institute Silver Medal to J. E. Hennessy, Leeds; a Medal of Merit to Mr. James Neale, London; and Certificates of Honourable Mention to H. R. Perry, Bath, and J. M'Laren, London. No essays were submitted in competition for the essay prize.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—On Wednesday, the 24th ult., a paper was read at a meeting of this society on "The Finding of the Saxon Church at Bradford-on-Avon," by the Rev. W. H. Jones.



### THE "BOTCHED" MAIN DRAINAGE SCHEME.

THE Corporation, as every one expected, makes another epileptic effort to obtain their ends at any cost. Hence we have an "Amended Main Drainage Bill" upon the boards to enable them to extend the time for the completion of the proposed Main Drainage works to five years, and to increase the Government loan from £350,000 to £500,000, and to empower the Council to appropriate the moneys received from Government on foot of rates on public buildings to the payment of interest and liquidation of principal. The Parliament is prorogued to the 5th of April, so the Corporation will have time to discuss and re-discuss their thrice-revised and thrice-amended and re-amended scheme.

The Borough Engineer, by way of explanation, has written a defence of the rubble masonry proposal, and has got Sir J. Bazalgette to help him on by a letter of commendation. What he ventures to tell us of the old city sewers and their construction we have known long years since, but he certainly does not want us to believe that the sewers constructed under the old Corporation are all rubble masonry, or a third of them, and if we even admitted, for the sake of argument, that they are of rubble masonry, has he the hardihood to tell us that they are models of construction, and suited for the present wants of the city? The sewers which he speaks of as a hundred years old are, many of them, built of brick instead of stone, or a combination of both. Can there be any comparison drawn at all between the sewers of the last century in Dublin and the ones needed now? Small indeed was the volume of foul water and sewage matter that passed through the old Dublin sewers, for they were constructed for a service that had little or no connection with our present water-closet system. Mr. Parke Neville should make himself better acquainted with the old drainage and sewerage system of Dublin before he rushes into print. On the old water-supply system, on which he more than once reported, and even read papers in London, he is indebted for his information to local authorities and to Mr. Andrew Coffey, an official of the old Corporation, who was a man of considerable experience, and who knew not a little of the underground municipal history of Dublin and of the old drainage and waterworks of Dublin.

Sewers that were fit for the wants of this city fifty or even twenty-five years ago are totally unfit to-day, and the merest tyro in engineering knows that the sort of rubble masonry construction proposed by the Borough Engineer is entirely unsuited, and is not adopted by any of our sanitary engineers in Great Britain who have a character to sustain on the score of professional ability. Our limestone is unquestionably good, and there is no doubt that the lime that might be procured in Dublin would equal that to be obtained anywhere. Contractors, however, have a habit of scamping sewer work as well as speculative builders have in connection with house work, and under the most favourable conditions sewers built with rubble masonry in Dublin or elsewhere would prove a most unsatisfactory and, in the end, a costly work. Added to this, we have had the announcement that "handy labourers" would suffice, and the material was so plentiful it might be picked up every-

where in any quantity. We must take note that Portland cement concrete is proposed to be used in some of the large sewers (how many of them?) in place of the rubble masonry recommended for the rest. What a nice higger-mugger has signalled the different engineering emendations. First, there was to be no rubble masonry, but Portland cement; then there was to be iron and no iron but wood; and next we have a partial return to Portland cement concrete and rubble masonry again. Do not all these twistings and turnings afford a sweeping condemnation of the two engineers, or if they are to be excused, was the original intention a dishonest one on the part of the promoters in the Corporation to inflict a ruinously costly scheme upon the city, so that a number of jobbers might be benefitted at the public expense? We speak our mind independent of all party bias or influence. We have no personal grudge to satisfy or clique to please, but having for long years watched the tortuous tail of this main drainage scheme we feel compelled to speak our minds freely on it and its surroundings. We cannot trim or time-serve, even though promises be held out to make it advantageous for us. This city, under its present circumstances, cannot afford to be taxed to the tune of half a million, with the certainty that another quarter of a million would be still required to complete a work which has been stamped by incompetence in its inception, and is certain, if carried out as now agreed, to end in scandal and failure.

### MICHELANGELO.\*

It will be our task to-night to remember that this year marks the completion of a fourth century since the birth of a great master and mighty artist, and to devote ourselves for a time to a consideration of the events of his long and honourable career. We hear so much nowadays of natural laws, averages, and systems, by the side of which mere individual efforts are futile as a fly on the wheel of some vast engine, that it may not be without advantage to us to dwell sometimes on the lives of those great men whose names shine out so brightly in history, and who have made their mark on the annals of their time. Such a one was Michelangelo Buonarrotti. There are names which bear with them a magic charm, and his is one of them. Sculptor, architect, painter, and poet, as well as patriot and politician, he seems, as we look back, to stand out more and more, in any picture we may frame for ourselves, of the times of the Italian Renaissance.

Michelangelo was born, as I have said, just four centuries ago. In these 400 years what important changes have occurred! States have arisen, and have been blotted out. The old world has burst its bounds and discovered a new one. Religions have altered their course. Everywhere there has been change, and yet the name of Michelangelo retains its charm, as when the impatient Romans of his day rushed to the Sistine Chapel to admire his last new work. It is the almost divine prerogative of art to know no change, and to preserve its principles universal, immutable.

We shall see hereafter that Michelangelo was a good citizen, as well as a noble artist; a Florentine first, and a sculptor afterwards. In his days, none could have dreamt of the United Italy, which has but lately arisen under our eyes, where politicians have seen for ages only a "geographical expression;" but we shall find him devoted to the freedom and independence of his darling Florence,—Florence the beautiful, and the proud.

Let us glance for a moment at the state of society into which Michelangelo was born. From the thirteenth century, rival parties in Florence had been fighting for the mastery. Guelphs and Ghibelines divided themselves into opposing camps, and shared the vicissitudes of victory and defeat.

These titles became in time mere party nicknames, and lost their original meaning. They arose in Germany, and are said by some to have been first known in the twelfth century at the battle of Winsberg, in Suabia, between two rivals for the Imperial throne, Conrad, Duke of Franconia, and Henry, Duke of Saxony, of the house of Wolf. A corruption of the latter name became the rallying cry of the partisans of Henry, while the soldiers of Conrad took their opposing title from Weiblingen, a town of Württemberg, the patrimonial seat of their leader.

It was not, however, till about the year 1240, on the excommunication of Frederic II. by the Pope, that the names of Guelphs and Ghibelines were generally adopted in Italy, the Guelphs supporting the Pope, and opposing the Imperial authority, which was upheld, more or less, by the Ghibelines. In later times the Ghibelines were regarded as the supporters of the aristocratic principle, while the Guelphs professed an admiration for a more popular form of Government.

Such were the parties Michelangelo found contending for supremacy in his native country. Let us now inquire for a moment what was the state of society, and morals.

It was a time of general corruption in high places, of treachery, poisonings, and violence. Petrarch, in one of his letters on Rome, writes:—"Such is the modern Babylon, whatever of perfidy or fraud, whatever of cruelty and pride, whatever of impurity and unbridled licentiousness, you may have heard or read of, whatever of impiety and of the vilest manners the world has elsewhere witnessed, you will behold all such evils accumulated in fullest measure here." "Here in Babylon all that is good expires. In this kingdom of avarice, nothing is deemed a loss, excepting the loss of money." "What is told us of hell, is treated as fabulous: the resurrection of the body, the end of the world, the coming of Christ to judgment, are esteemed fables. Here truth is deemed folly, abstinence rusticity, chastity a signal reproach, licence in sin, magnanimity and praiseworthy freedom."

This language can, it is to be feared, be hardly called exaggerated, and it reveals a state of things at the Papal Court which doubtless contributed, in no slight degree, to that cry for reform which echoed over Europe at the beginning of the fifteenth century, and which [raised previously by Wycliffe in England,] was then taken up in Bohemia, Moravia, and Germany, with such important results to the world at large.

The sovereign Pontiffs, at this time, seem to have merged the priest in the king, and to have hesitated at no means to compass their plans of State. Sixtus IV., and his successors, Innocent VIII. and Alexander VI., under whom the childhood and early manhood of Michelangelo were passed, stand out in a bad pre-eminence, even amongst their not too scrupulous contemporaries. Conspiracies, assassinations, and vicious indulgences mark their reigns, and it is well known how the last of them, Alexander VI., with his natural son, Cæsar Borgia, made his name a by-word of infamy, and finally perished by poison treacherously prepared by him for another.

From this brief account of the social corruptions of his day, it may well be imagined how fraught with peril must have been such a state of things to the character of young men entering life like Michelangelo. Himself of noble descent (for the Buonarrotti, or as they called themselves, the Buonarrotti-Simoni, were among the most distinguished Florentine families), he would naturally have plunged into the dissipations around him, had it not been for the proud uprightness of his character, which was fostered by the influence of a great reformer, and most remarkable man.

This man was Savonarola, a patrician by birth, a priest by profession, and a reformer by conviction. An ardent enthusiast, he preached with the zeal of an ancient prophet, pointing to Rome as the mystic Babylon and mother of abominations. Austere and incorruptible, he denounced the impurities of the cloister, the corruptions of the church, the

\* Professor E. M. Barry's second lecture at Royal Academy, March 1st.



tyrannical cruelties of the State. His speech, at first marred by an infirmity, like that of the Greek orator of old, at length electrified such congregations as had never been seen before.

Led by the occurrences around him to take a lead in politics, the aim of Savonarola seems to have been to establish in Florence a theocracy, in which religion and law should be one and the same, very much as was contemplated by our own Puritans. His burning zeal made him many enemies, and betrayed him occasionally into extravagance. An instance of the latter was the destruction of works of art; which he induced his followers to devote to the flames, in the public place opposite to the palace of the seignory in Florence, so well known, doubtless, to many of you. From the corruption of the times, there can be little doubt that some of the pictures and books and other works thus condemned by wholesale may have deserved their fate; but when we read that Frà Bartolomeo was so carried away by enthusiasm, that he brought his life-academy studies to be consumed on the pyre, we cannot but regret that the story of Savonarola's noble life should be disfigured by this outbreak of monkish bigotry in opposition to taste and genius.

I must not, however, dwell on the intensely interesting life of Savonarola, which was spent in the denunciation of the vices of the town, and of the iniquities of the Papal court. His end soon came. Excommunicated by Pope Alexander VI. in 1497; deserted by friends; and insulted by a fickle populace; he was strangled and burnt, in 1498, in the Piazza dei Signori, now the well-known Piazza Gran. Duca, in the forty-sixth year of his age.

Such was the untimely end of this great reformer; but his work did not perish with him, nor the powerful influence which he exercised on some of the best artists of his day. Notwithstanding the indiscriminate character of the artistic burnt sacrifice already referred to, Savonarola was not destitute of appreciation of artistic beauty. He had devoted followers among artists and their families, and among his earliest adherents was Frà Bartolomeo, whom we have already seen devoting his works to the flames at the bidding of his friend. This great artist was so deeply affected by the tragical fate of Savonarola, that he renounced his art, and buried himself in a cloister, whence all the entreaties of his admirers were needed to induce him to emerge, and resume his artistic pencil.

I must do no more than mention Lorenzo de' Credi, with Luca della Robbia, and Andrea his nephew, as among the disciples of Savonarola; also the architect, Cronaca, who crowned the Strozzi Palace with its massive cornice.

The young artist was about twenty-four years old when Savonarola was put to death, and we may believe that his character was greatly influenced by the teaching of the great preacher. We are told, indeed, that Michelangelo ever regarded his memory with affectionate veneration, and that in his declining years the Holy Scriptures, and the writings of Savonarola, were his favorite study.

It was into this stormy condition of affairs that Michelangelo was born, and in which he lived. Let us now trace some of the principal events of his life.

The day of his birth was the 6th of March, 1475, and the place, the Castle of Chiusi and Caprese, of which his father was governor for the year. His father, Ludovico di Lionardo Buonarrotti-Simoni, was sprung from an ancient family, being descended from the Counts of Carrossa. The mother of the future artist was Francesca Rucellai.

On the return of his parents to Florence, on the expiration of the elder Buonarrotti's year of office, the infant Michelangelo was put out to nurse with the wife of a stonemason, living a few miles from Florence. In after days, when spectators used to marvel at the energy of the young sculptor, who made the flakes of marble fall under his chisel with astonishing rapidity, Michelangelo used jestingly to refer to the circumstances of his

infancy, and would declare that he imbibed a love for the chisel and mallet with his foster-mother's milk.

It is clear that the artistic tastes of the future artist were early developed, and that somewhat against the wish of his parents, who were disposed to regard with dissatisfaction the devotion of one of their sons to a profession, which they seem to have regarded as derogatory to patrician lineage. Family pride and even personal harshness was, however, of no avail. The lad of fourteen gave even then a foretaste of the strong will of later days, and, happily for art, Michelangelo remained steadfast, and on the 1st of April, 1488, was articulated to Ghirlandajo, at that time an artist of note, and having many pupils and a large practice.

This was the real commencement of Michelangelo's artist life, and his genius was not long in showing itself unmistakably. He was encouraged in his ardour by a friend and fellow-pupil, Granacci, a youth about five years older than himself, and to whom he turned for encouragement and advice.

According to Vasari, the two friends were working one day at the Academy of S. Marco, at Florence, when the attention of the reigning Duke Lorenzo de' Medici was attracted to the head of a fawn which Michelangelo was imitating from an antique model. Looking kindly on the young artist, the Duke said,—"How is it you have given your fawn a complete set of teeth? Don't you know that such old fellows are sure to have lost some of them?" Next time Lorenzo saw the bust some of the teeth had been removed, and their sockets cleverly displayed. The Duke being pleased with this courtier-like appreciation of his criticism, inquired the name and age of the sculptor, and ended by taking the youth under his especial patronage. This was the beginning of the public life of Michelangelo, who from that time became habituated to the intercourse of the leading men of his time.

But Michelangelo was well aware that the smiles of the great would be of little avail, if he did not master the principles and details of his art, and we find him, at this time, not only drawing, painting, and modelling, but also deep in the study of anatomy and the uninviting mysteries of the dissecting-room. He thus gained that marvellous knowledge of the human frame which hereafter distinguished his works.

He soon made great advances in his studies, and seems to have incurred some ill-will from the envy of his fellow students, for one of them, Torrigiano, having insulted him, an encounter followed, when an unlucky blow from his antagonist broke the bridge of Michelangelo's nose, and disfigured him for life. We can form an idea of the favour in which he was held at this time, from the anger of Lorenzo with Torrigiano, who was at once banished, while Michelangelo grew daily in favour, and took up his abode with his patron.

Lorenzo de' Medici was at this time in the plenitude of his power. He had just successfully escaped from a plot against him, known as the conspiracy of the Pazzi, which cost his brother, Giuliano, his life. The conspiracy had been fomented by the reigning Pope, Sixtus IV., and it is suggestive of the state of society at the time, that the place selected for the murder of the two brothers was the Church of Sta. Maria dei Fiore, and the time the celebration of mass by Cardinal Riario, one of the conspirators, and a relative of the Pope.

The signal was to be the bell which signifies to the silent congregation that the most solemn mystery of religion is being celebrated. In the tumult that arose, Lorenzo was struck in the neck by a dagger, and though he escaped with life, his brother was less fortunate. Nevertheless the conspiracy failed in its object, the Pazzi family were all but annihilated, and Lorenzo's power was more firmly established than before. He was then the better able to turn to the arts of peace, for relaxation from graver duties, and his court became a home for literature, philosophy, poetry, and art. In

such an atmosphere we may be sure that Michelangelo breathed freely, and found ample scope for his genius.

But this unclouded prosperity was not long to continue, for in 1492 Lorenzo died. Michelangelo was at this time scarcely 18 years of age, and felt keenly the loss of his powerful friend and protector, whose nobler qualities had not descended to his son and successor, Piero de' Medici.

Piero soon gave himself up to sports and pleasure, and, among his transactions with Michelangelo, we are told that he commissioned the latter to form a statue of snow in the court-yard of the palace. It was a time of dissipation, folly, and superstition, and the expulsion of the Medici family was not far off.

Michelangelo was too keen an observer not to be troubled by signs of coming distress, which escaped the notice of his careless master. The prophetic denunciations of Savonarola were ringing in his ears. The woes announced by the latter seemed about to burst on the devoted city, and likely to involve him in the ruin of the Medici. After some hesitation, he determined to fly, and left Florence for Venice, just before the advance of an invading French army forced Piero, who went out to meet it, to surrender himself a prisoner. All offers and negotiations proving abortive, Piero was allowed by his conquerors to return to Florence, but was soon expelled as a traitor by the infuriated populace.

Michelangelo did not long remain in Venice. He had at this time but few resources, and his slender funds were soon exhausted. He therefore returned to Bologna, from which he could more readily observe, and take advantage of any improvement of affairs at Florence. It is said that on his entry into Bologna he got into trouble. Every foreigner entering the gates had to present himself to an officer, who marked his thumb with a seal of red wax. Michelangelo, neglecting this custom, entered the city with no seal on his thumb, and was consequently arrested, fined, and imprisoned.

From this state he was released by Signor Aldovrandi, a leading Bolognese citizen, who ultimately persuaded him to abandon any intention of proceeding further, and to remain with him, as an inmate of his house. Scarcely had Michelangelo agreed to this proposal, when his late master, Piero, arrived, with his family, to seek shelter in Bologna, after their expulsion from Florence.

It was at this time that Michelangelo designed the well-known kneeling angel holding a candelabrum, which is still to be seen at the church of San Petronio, as an adjunct to the shrine of St. Domenico. This work caused much ill-feeling, as the Bolognese were very jealous of strangers, and Michelangelo soon determined to return to his native city. Here all was changed; the very name of the Medici proscribed, their art-treasures dispersed, and the artist society which gathered around them shattered and dejected. The influence of Savonarola was supreme, and a more than Puritan austerity had succeeded to the gay and careless days of the Medicean rule.

Michelangelo, however, still found friends, and settled down to his artistic life. A cousin of Piero, Lorenzo de' Medici, had remained in Florence under an assumed name, and for him several commissions were executed by the young sculptor. One of these works, a Cupid, for which Michelangelo received 80 ducats, was sent to Rome, and there sold as an antique for 200 ducats.

The purchaser in Rome was Cardinal San Giorgio; the same Raffaele Riario who said mass in Florence as a signal for the attempted murder of Lorenzo de' Medici and his brother. The cardinal having a suspicion of the trick which had been played upon him, sent to Florence to make inquiries as to the genuineness of the sculpture. The result was an invitation to Michelangelo to come to Rome, which the latter accepted. He set out at once, and arrived in the Eternal City on the 25th of June, 1493.

(To be continued.)

## AIR AND VENTILATION.\*

In the treatment of this subject this evening I shall be compelled to omit any consideration of the first half of the title, and confine myself to ventilation simply, or I would rather say, to the pollution of air, and rendering of air fit for breathing. When we analyse very carefully the atmosphere we find it consists of one volume of oxygen diluted with four volumes of nitrogen, the oxygen being an active gas, diluted with an inactive gas. Therefore, generally speaking, air has the properties of oxygen somewhat enfeebled. Besides this, we have in air a small quantity of ammonia and a small quantity of carbonic acid; that is the common name, but the scientific name is carbonic anhydride, and it is also called carbon di-oxide. Now the quantity of carbonic acid, as I shall call it, is only very small, but nevertheless it varies very widely within very small limits. The properties of this gas form the first part of my subject. To begin, then, with the properties of carbonic acid, there are two which are especially remarkable—one is the very great weight of the gas, and the other is the property it has of extinguishing flame. With regard to the sources of the gas. Before I show its properties, I will show the sources of this gas. First of all, there is combustion; and besides the sources of the gas I shall have to refer to the means by which we detect it when it exists in any considerable quantity in the air, for which purpose lime-water is a very convenient test. To show that carbonic acid is produced by combustion, I place some clear lime-water in a jar in which a gas jet has been burnt, and you see the lime-water becomes turbid in a very short space of time from the separation of the insoluble carbonate of lime. The next source is respiration. This may be easily shown in the same way by the aid of lime-water. Here is an apparatus through which I can draw the air necessary for my respiration. First of all, the air passes through lime-water, and by so passing through lime-water it will show you if there is any considerable amount of carbonic acid in the air; secondly, the air from the lungs passes through lime-water again, and that will show whether there is any excess of carbonic acid in the air of the lungs over that in the ordinary air. You will see that in one of these bottles, the one through which the air passed, the lime-water is clear, while that through which my breath passed is turbid, showing that the breath is a source of carbonic acid. Then I have again to show you the properties of this gas when we take care to have it undiluted with air, and in order to get it undiluted with air as much as possible we prepare it from marble, and any strong acid, such as hydrochloric acid or sulphuric acid. This apparatus is now making carbonic acid, and here is a vessel into which this carbonic acid is evolved. The gas there you see is colourless at any rate. Here is another vessel which also supplies me with a certain amount of carbonic acid, and with this vessel I propose to show you the power that carbonic acid has of extinguishing flame. Both these experiments also explain to you that carbonic acid is a heavy gas; in other words, if the carbonic acid were lighter than air, as there is an opening in the top of this vessel, it would readily escape from such a large jar as this, but as it is a heavy gas, you may remove the top of the vessel, and the carbonic acid will remain in it for a short time. To show that there is carbonic acid in this jar, I will put a lighted paper in it. You see that it is extinguished. But to show it on a large scale, I will take a torch of tow and set fire to it; you see it is at once extinguished in this jar of gas. To show you that it is a heavy gas I will inflate this small balloon with air, and put it into this glass, and we shall see whether the gas is sufficiently heavy to float the balloon. You see it only just floats, half way up the glass; but if I blow a soap bubble it will float on the top of the gas. At any rate, you see these

two effects of carbonic acid—first that it extinguishes flames; and secondly, that it is a very heavy gas. I have to bring before your notice the fact that in the outside air the carbonic acid is so mixed up with the oxygen and nitrogen that the air practically over all parts of the world has the same composition; and, although it has not exactly the same composition, yet the variations are within very small limits. Nevertheless, the air of the mountains on the seashore of Scotland varies from the air in the streets of London, and this variation, which is occasionally small, you will see is of considerable importance by the tables on the wall. These tables, which are taken from the analyses of Dr. Angus Smith, show not only the variation in the air of towns from the air of the country, but also show the variations between the air of one street and that of another. Here is the air from various places in Scotland on the hills. If this table be read with the first number as a whole number, then we must count it as volumes in 10,000 volumes of air; and that will give us 8.2 volumes in 10,000 of air. At the bottom of the hills it is 8.41 in 10,000. Then we come to London; in the parks and open places the air contains 8.01 volumes of carbonic acid in 10,000; on the Thames, 8.48 in 10,000; in the streets, 8.8—that was in April, 1864. Later on, in April, 1869, we get the carbonic acid in the streets as 4.89. In Manchester during fogs, 6.79, which is a considerable variation from Scotland on the hills. Then I come to some large numbers, which I will not allude to just now. In this table we have the analysis of air in duplicate, so as to ensure the accuracy of the analysis. In the north, north-east, and north-western districts, Dalston, Hoxton, Hackney, St. John's-wood, and Belsize Park, we have a series of analyses made, and the average of these, with that of Belsize Park omitted, gives us 4.445 in 10,000. In the west and west-central districts it amounts to 4.115; that is, Woburn-square, Tavistock-square, Regent-street, Oxford-street, Hyde Park, and Sloane-street. In the east and east-central it is 4.745 in 10,000. In looking at these tables it must strike anyone that in the part of the town where it is open, consisting of wide streets and squares, with houses thinly inhabited, that is to say, large houses, and no factories, the air is considerably better than in the east of London, where there are crowded neighbourhoods, such as Bethnal-green, and where there are narrow streets and manufactories of different kinds. This, then, shows that we have considerable variations in the air even in one town, although that town is certainly the largest we can take for the illustration.

Now as air is vitiated by carbonic acid produced by combustion and by respiration, when a number of people are gathered together in a room, what becomes of the carbonic acid produced by respiration and combustion? Fortunately, the heavy gas is so acted upon that it ceases to be heavy, and rises to the ceiling, and so we have a natural means of ventilation. This I propose to show you very shortly. I have here arranged two little jars, which, I think, will show the same thing on a somewhat smaller scale. They both contain carbonic acid. That I will see first, by putting in a taper, when they both extinguish it. I will put them under precisely the same conditions, except that I will warm the gas in one jar, and to do that I will put in a little flask containing water, the water in one being hot and in the other cold. After a few minutes I will test them again with the taper, and see whether they are in the same state. While that is in operation, I will show you what becomes of the gas and the vapour produced by an ordinary fire or burning gas. That is easily done by confining the gas produced by the combustion of a large gas burner in an air balloon, and the balloon will soon be inflated and rise to the ceiling, showing the course the burnt gas would take. It is evident that the gas rises to the ceiling. We have there one natural kind of ventilation. Now I will show you with the tapers whether these two

jars of carbonic acid are in the same state as they were at first. The taper is put out in one, but in the other it still burns as brightly as it would in the open air; the carbonic gas warmed by the flask of hot water has made its escape.

The next fact I want to show is that if air has once been drawn into the lungs and ejected, it is useless for either respiration or combustion. I can show it is useless for combustion, and you must take my word for it that it is not fit to breathe. If I extract the air from this jar and then return it from my lungs into the jar again I shall be able to test it with the taper, and to see whether it will furnish the taper with sufficient oxygen to cause it to burn. You see the taper is extinguished, all the oxygen of the air has not been taken out, as I will show you directly. The amount of carbonic acid in the expired breath is about 5 per cent. I have a little phosphorus here in a spoon, and as phosphorus is much more combustible than gas or a taper which will burn with less oxygen, therefore, if there is still any oxygen here I shall be able to burn it in the jar—it does not burn quite so brightly as it did in the open air, but it still burns.

The next experiment is to show the deterioration of the air by means of combustion; in the same way if the taper be burnt in the air, and be allowed to burn so as to consume so much oxygen that there is none left, it goes out. But by a little arrangement I can show you that there is still oxygen in the air, that it does not consume it all. There is the taper burning in the jar, and I will close the bottom, and make it air-tight by a drop of water. This wire passing into the jar is getting hot, so that I may be able to touch a piece of phosphorus in the centre. As soon as the taper goes out, I shall by that means be able to kindle the phosphorus, and show that all the oxygen in the jar has not been used up. Now, you see, the taper has gone out, but still that there is oxygen there is shown by the combustion of the phosphorus. The first effect, then, of respiration and combustion on the air is to render it unfit for respiration again, and unfit for combustion. We already see that the carbonic acid produced by combustion and also by respiration to a certain extent being heated, rises to the upper part of a building; and there are other means yet, besides this lightening of the heavy carbonic acid gas which causes fresh air to be introduced into a house. Some experiments made by Feddersen, of Leipzig, show that when there are two atmospheres in two different states, one hot and the other cold, there is between these a porous medium for the passage of the gas from the cold to the hot side. So that it comes to this, if we take a tube and put a porous plug in the centre, and make one side hot, leaving the other side cold, the gas passes from the cold side to the hot side. This is found to take place in houses, where there is a passage of gas through the walls of a building. Before I allude to this point further, I will just give you an illustration or two of ventilation caused by the rising of the heated air. In every room where there is a chimney there is a source of fresh air, not down the chimney, but through the cracks in the windows and doors, and by the constant opening of doors, and this fresh air thus entering drives forward the heated air, which has a tendency to rise, and drives it up the chimney. If we have no chimney in the room then this source of fresh air is practically valueless, because there is no escape for the vitiated air; and this may be illustrated by the jar which I have here with two candles. There is an entrance for the air below by cracks, the jar being raised 1-16th of an inch above the glass plate. The opening at the top is like the chimney in a room, the fire-place is below, the opening of the chimney is below here, and the taper burns steadily below the chimney. Here is a taper burning above what may be called the fire-place of the chimney, and as the vitiated air rises to the upper part in the bell-jar, it will in course of time vitiate the upper atmos-

\* By Mr. W. N. Hartley, F.C.S. Read at meeting of Society of Arts, February 19th.

phers, and so cease to support combustion, while the lower taper continues to burn as brightly as ever. That is already manifest here; the upper taper is languishing, while the lower one is burning brightly. Now it is out, the lower one burning as brilliantly as at first. Supposing we have a condition of things where we have no chimney, where the source of contamination is down below, such as we have in a coal mine, we must have fresh air entering somehow or other; if it cannot enter from below, it must enter from above. That it does enter from above is shown here, where I have what may be represented as a cellar or a coal mine, this one tube representing the chimney of the cellar, and the other tube a staircase into it, or representing the up-cast and down-cast of a mine. That there is a draft down one chimney and up the other may be shown by the smoke travelling down the left-hand and out of the chimney where the light is. By stopping the down-shaft we may extinguish the light—the light is extinguished by reason of the want of air. That illustrates the ventilation of mines; and here is an apparatus which illustrates it much better, because this represents more nearly what is the actual state of things. A bell-jar with a chimney at the top, in other words a mine with a short shaft, is closed at the bottom so as to make it air-tight, with a little water, and after a time you will see the taper will by no means burn very brilliantly. It is not necessary for fresh air to go down a separate shaft into a mine or cellar, but it may go down the same shaft by which the foul air escapes; but, in order to effect that, if the air is perfectly still, the shaft must be divided, and that I propose to do as soon as the taper begins to languish. I will then introduce a division, which will cause the fresh air to enter down one side and the foul air to escape by the other. The taper is now beginning to die out; by interposing that division I shall cause it to revive. It takes a little time for the currents to establish themselves. Now, with a piece of brown paper, which gives me a supply of smoke, I will now find out which is the down-shaft and which is the up—down which side the fresh air is entering and which side the foul air is escaping. We have here very plainly shown the action of currents produced by the heating of the gases.

(To be continued.)

## WESTERN NOTES—BALLINA.

BALLINA (in Irish, *beal-an-ucha*), "The Mouth of the Ford," is a flourishing and go-a-head town. Like Ballinrobe, it is situated on a noble river, the Moy, which divides it into two parts. That on the County Sligo side, being the most inconsiderable, is called Ard-na-ree, "The King's Height." In this small division of Ballina are situated the Protestant and Roman Catholic places of worship.

The streets and footways of this favourite place are well supervised by the county surveyor and his active deputy. Knox's-street is the finest and best in the town; in it are located the hotels, banks, and principal mercantile establishments. The breweries and flour-mills are in the Ard-na-ree quarter.

The wells from which the inhabitants of this town derive their water supply for culinary and other domestic purposes are, to say the least of them, not as they should be. Two gentlemen lately sent officially to inspect them, report that "they are contaminated by the refuse water of the town sewage commingling with them," thereby rendering them promoters of the African pest (zymosis) small-pox, "the precursor of misery, sorrow, and death."

The Moy, though navigable for vessels as far as Moyview, is not deep enough to float the steamers that trade between this port and Glasgow. It is to be hoped, now that Ballina is alive and stirring herself in the matter of waterworks, &c., that the Town Commissioners will see the necessity of getting a bill passed through Parliament for deepening and making navigable their fine

river from Killala to the quay at Ballina. This work could not be a very difficult or expensive affair, as there are very few shoals or rocks requiring removal.

The landlords of Ballina are the Earl of Arran and Colonel Sir C. Knox-Gore, of Belleek Manor, a noble mansion overlooking the river Moy, a mile or so below the town. There is another fine mansion nearer the town, the seat of the Hon. Mr. Perry, of Limerick. The Knoxes possess the finest and best seats in Tyrrawley—viz., Castle Larken, Castlereagh, Kappa Castle, and Mount Falcon.

The Moy is a noble salmon river, resorted to in the season by Waltonians from all countries. It rises near Ballinlough, in the County of Roscommon, from which also the Robe takes its rise, and runs its sinuous course south to Lough Mask, whilst the Moy runs directly north for about 40 miles stat. to the Bay of Killala. In the vicinity of Ballina there are two monasteries—Roserk and Moyne. The latter is a more pretentious and picturesque building than Roserk, which lacks the chaste and ornamental features of Moyne, and shows more skill and architectural beauty in the tracery of its windows and doorways than its rival, Roserk.

J. N. GILDEA, C.E.

Ballinrobe, 20th March, 1875.

## IMPROVABLE WASTE LANDS OF IRELAND.

THROUGH the Society of Friends, upwards of £200,000 in food, money, and clothing, was distributed to the starving poor of Ireland during the famine of 1846-7, over half of which was sent from America. Several of the Quakers visited Ireland then, and we give some extracts from their letters published for the Central Committee in Dublin by Hodges and Smith, in 1852, on the Waste Lands. Tuke's report, page 150, dated Glenties, 16th December, 1846:—"Leaving Dungloe, we proceeded to Glenties, still on the same property (Marquis of Conyngham), and throughout our journey met with the most squalid scenes of misery which the imagination can well conceive. Whilst thousands of acres of reclaimable land lie entirely neglected and uncultivated, there are thousands of men both willing and anxious to obtain work, but unable to procure it." Tuke's visit to Erris and report on Connaught, autumn of 1847, page 205:—"On entering the houseless and uncultivated region of Erris, the traveller is reminded of the wilds of Canada; for some miles hardly an acre of cultivated land greets the eye. Yet this district is reported by the Waste Land Commissioners as peculiarly capable of improvement. From Bangor to Belmullet, a distance of 12 miles, the same dreary waste of uncultivated and neglected land extends. In only one place did I observe any sign of or superior cultivation. This was on the estate of a proprietor named Atkinson, and as this is the only instance in the barony (282,881 acres) of any attempt to adopt a perfect system of drainage, it is the more observable, presenting, as it does, a pleasing contrast to the desolation around it. I never saw what appeared to me more complete and excellent work. Erris affords one of the most perfect specimens of the mischiefs connected with that vicious system by which landed property remains in the hands of those wholly unable to discharge its duties, or even to open the door to allow others to perform them."

Nearly half of the area of Galway, Mayo, and Donegal, are waste lands, one-third of which are reclaimable and improvable, but as the landlords generally refuse to improve, though the Government offers loans at very moderate rates, the Government should purchase and sell—or purchase, improve, and then sell.

The Waste Land Unions might be empowered, as the communes in France, Holland, and Belgium, to undertake such

works on the security of the rates, and sell the lands so improved and reclaimed.

The Government and people of England and Scotland subscribed very liberally during the famine years; the United States sending through the Friends, money and food to the value of £117,000. The British Government paying freight on the food to the value of £38,000, or nearly one-third the cost of the food. We would recommend the perusal of "The Transactions during the Famine in Ireland" by the Central Relief Committee of the Society of Friends, and Sir Charles Trevelyan's "Irish Crisis" in the January number of the *Edinburgh Review*, published afterwards by Longmans, to those charging the loss of our population and the sufferings of the people to the British Government and the Union, as complete refutations of Irish calumnies, as will be seen in a letter of the *Times* of the 26th ult., copied into several of the Irish papers, to which we refer our readers. K.

## LARGE AND SMALL FARMS.

## FOURTH ARTICLE.

IN the famine year, 1848, to give employment to the emaciated labourers, a piece of heath, where the peat was not very deep and the soil gravelly, was selected to be broken up. Large drains were dug, and the gravel thrown in the centre between these drains. The sides of the drains were used to fill up the drains. It is necessary to state that had this work been done by contract by able-bodied instead of starving men, it could have been done for one-half the cost, as an offer had been made to do it. Bullocks were used to plough it up, and a crop of rye was sown. When this was out the straw was used in bedding cattle, and the land was again ploughed, and a green crop was sown, followed the year after by a grain crop, with which grass seed was sown, and after the first year's hay, for six or seven years the land was grazed chiefly by sheep, but plantations chiefly of fir had been planted around as shelter. It has several times required to be broken up, and this four years' system has usually been used. Similar land can be seen in Scotland and Ireland in the same state of nature, still feeding sheep, cattle, and geese, and often in bad seasons the loss of these animals is really surprising. Single individuals will not undertake any plan but grazing; all their capital is sunk in live stock. The difficulty of getting labourers and creating a shepherd into a ploughman is another draw-back. A person who probably lives some distance from the land is deterred from embarking in cultivation. Some of these lands are on the side of hills, where drainage can be easily made and the steam plough can be more easily employed than oxen or horses, and the soil more deeply mixed up, and besides there is both fuel and water for working machines and mills.

Mr. Brett suggested the Government purchasing these lands and letting them to single individuals. This would be the small farmer over again. Small farms have failed. Plenty of land formerly broken up can now be seen returned to a state of nature, and now grazed like the neighbouring heather. If ever the waste land of these islands is brought into a state of culture it can only be by large companies. Such companies can, by the introduction of large machinery, worked by steam, or water, or other power, change the whole face of nature and improve the stock, and by more house feeding create more manure, give more labour to better educated persons who will require more healthy habitations, and acquire a greater regularity in attending to the management. The greater demand for labour will be a check to emigration, and the overcrowding of towns will not be necessary, as the agricultural labourer will be necessitated to live close to his work in the country. \*

## R. C. CHURCH BUILDING NEWS.

**Ballymoney.**—On the 17th ult. the first stone of the new church of St. Mary and St. Patrick was laid by the Most Rev. Bishop Dorrian. The building will be in the early Pointed Gothic style, and will consist of nave, aisles, south porch, sacristy, and tower and spire. In length it will be 113 ft., and width 55 ft. The tower, which will stand at east side, will be 139 ft. high. It will be divided into three stages—the lower one having a statue of St. Patrick, whilst the second and third will be pierced with windows. The spire will be ornamented with bands of wrought stone. Messrs. O'Neill and Byrne are the architects.

**Rathfarnham.**—On Monday last the foundation-stone of the new parochial church was laid by Cardinal Cullen. The site has been given by Mr. Hodgins, J.P. It is situated at an angle of the demesne and the junction of the two roads leading from the village of Rathfarnham. The style will be Early French, and the building will comprise nave and aisles, with chancel terminating in three semicircular apses. Mr. G. C. Ashlin is the architect.

## BOOKS RECEIVED.

*Elements of Practical Hydraulics, for the Use of Students in Engineering and Architecture.* By Samuel Downing, LL.D., Professor of Engineering in the University of Dublin; Hon. Member of the Institute of Mechanical Engineers; Associate Institution of Civil Engineers. London: Longmans, Green, and Co. 1875.

THIS is a third edition, revised and enlarged, of Mr. Downing's very useful and essentially practical work. The book is certain to become a standard one. In this volume, which comprises the first part alone of the work, besides the introduction there are two excellent chapters devoted to the discharge of water through an orifice, velocity, &c.; and in relation to weirs, waste boards, or overfalls; and next the flow of water under a variable head, with the general principles of velocity and discharge, &c. What makes the volume of more value is its second division, in which there are a number of "Examples and Practical Applications on Chapters I. and II.," in which we have practical rules as to sluices, various arithmetical examples, measure of water on Italian irrigation canals, and the chief apparatus in use for constant discharge, including those by Thom, at Kilmarnock by Gale, canal of Isabella II. in Spain, Marseilles Canal in France, Henares Canal by Bateman, and others at home and abroad. Among the examples and practical applications we have Pitot's tube for measuring the velocity in rivers, Ramsbottom's apparatus for filling tenders (locomotive), floating Britannia tubes, pressure on pontoons, the "Cataract" in Cornish pumping engines, and the ancient Clepsydra or water clock. In the examples on weirs we have the self-acting separation of turbid from clear water, Lowell's experiments, &c. In illustration of the subjects discussed, there are numerous well-executed woodcuts.

It would be needless to remind the experienced engineer and architect of the value of a sound knowledge of the science of hydraulics, seeing that it is part of the education of both to acquire that knowledge, and part of their practice as professional men to apply it. It enters into the chief designs of the civil engineers of the present day to apply hydraulics in determination of the dimensions of pipes for conveying water, gas, or air, and also in all those works for the collecting, conveying, and distributing the necessary supply of water for all our modern public and domestic wants. Whether it be for the purpose of mill power, inland navigation, the water supply of dwellings, for

lifting, pressure, or driving, or for sewage or other sanitary uses, hydraulics applied as an art has now become portion, and an indispensable portion, of an architect's as well as the engineer's profession. Still in this country we are far behind our Continental neighbours in our knowledge of the application of the art. Builders have long since in Paris, in all large jobs, dispensed with the services of the immemorial hodman in his character of scaling the ladder with a load of bricks in his hod, or a large stone. Hydraulic power is now being applied in all large warehouses, and wharves, and in hotels on the Continent and the sister kingdom, particularly in London.

The science of hydraulics has been of slow growth in Western Europe. Although we read of the inventions of the Alexandrian school under the patronage of the Ptolomies, little attention seems to have been devoted to the motion of fluids. From the first early attempts to investigate the subject in the reign of Nerva and Trojan, no advance worth recording took place till near the close of the sixteenth century, when the discoveries of Castelli and Torricelli gave a fresh impulse to the study. In England the discoveries of Sir Isaac Newton and other philosophers added to the progress of the science. Architects, however, as a body, up to the middle of the eighteenth century (and they were engineers then as well as architects) knew scarcely aught of the science.

If anyone is desirous of knowing how little was known of the science of hydraulics, up to the middle of the last century in this country, by architects, let them read George Semple's "Building in Water," including his quaint "Diary" of the rebuilding of old Essex Bridge. Semple was a self-taught, and, indeed, a sagacious and thoughtful architect. When called upon by the city to re-build Essex Bridge, he, for a long time, cast about him in vain for information or sources of information on hydraulic engineering. After much inquiring and trouble he at last secured the once-celebrated Belidor's volume published in his days, and, though in French, Semple, by diligent study of the plates, obtained some valuable hints which he improved upon. Semple's book is well worthy of study at the present day, if only for the example it affords of self-exertion; but, apart, it has its value as illustrating the state of hydraulic engineering in these islands in the last century.

In the Transactions of the Royal Irish Academy for 1788 there is a paper by the Rev. Mathew Young, D.D., M.R.I.A. (Bishop of Clonfert), which shews that our countrymen before the close of the last century were beginning to bestow some attention to the science of hydraulics. The paper is entitled, "An Enquiry into the different Modes of Demonstration, by which the Velocity of Spouting Fluids has been investigated *a priori*." As we may more fully allude to this paper on another occasion, we will merely say now that the Rev. Mathew Young passes under review the different theories on the subject, from the time of Benedict Castelli to his own day, reviewing the demonstrations of Newton, Emerson, Whiston, Hutton, Jurin, Maclaurin, Robinson, Helsham, Abbé Winkler, Mussenbroeck, Varignon, Belidor, Gravesende, and others. Mr. Young illustrates his essay by some diagrams, and his paper is well worth notice as a contribution to the science of hydraulics in this country at the close of the eighteenth century.

In the early volumes of the Transactions of the American Philosophical Society, before the close of the last century, some papers will be found bearing upon the subject of hydraulics. These papers above alluded to, read in the light of Mr. Downing's volume, will afford food for thought. The volume under notice will be found useful outside professional ranks, but to the professions—engineering and architectural—it must prove a safe and excellent volume for ready reference and practical illustration, and as such we can recommend it to our constituency.

*The Irish Medical Directory for 1875.* Dublin: 23 Ely-place.

THE fourth annual issue of the "Irish Medical Directory" will be found a greatly improved one to previous issues. Amongst additional matter supplied we find the following:—Sanitary Salaries in Urban and Rural Districts—The Public Health Act—A Complete Digest of Sanitary Law—The Sanitary Orders of the Local Government Board, &c. Some members of the profession may still find their names altogether omitted from the alphabetical list, or their status inaccurately recorded; for such the blame must rest with themselves for failing to supply the information repeatedly asked for, and which they should have considered it their interest to furnish, so that the work should be as perfect as possible. The "Directory," from its varied and valuable contents, should have patrons amongst the other learned professions, and also those interested in sanitary affairs. The work is creditably got up.

*Lockwood and Co.'s Builder's and Contractor's Price-book for 1875.*

*The Rudiments of Practical Bricklaying.* By Adam Hammond. Lockwood and Co.

*Spon's Architect's and Builder's Pocket Book of Prices and Memoranda.* Second Edition. Edited by W. Young.

*On the Application of Portland Cement to Marine Works.* By B. B. Stoney, C.E.

*Fifteenth Annual Report of the Amalgamated Society of Carpenters and Joiners.* Manchester: Heywood.

*Studies in Design.* By Dr. Dresser. Part 5. London: Cassell, Petter and Galpin.

*A Grammar of Colouring applied to Decorative Painting and the Arts.* New Edition. By Ellis A. Davidson. London: Lockwood and Co.

## STREET OBSTRUCTIONS IN DUBLIN.

WHILE in several of the chief towns and cities of England and Scotland and in the provinces of this country the Police Act and other acts bearing upon nuisances and street obstructions are being enforced, here in Dublin shopkeepers and vendors are allowed to do as they please. We have several times pointed out the acts and penalties bearing upon the case, and submitted that it was the duty of the Commissioners of the Police to take action when the Town Council refused to put the law in motion. North and south of the city the obstructions in our streets at present are intolerable, from their nature and magnitude. Earl-street and Talbot-street, from once being respectable and well-managed thoroughfares, are now nothing more than markets. The footways, for several feet in front of the houses, are invaded by butchers and provision mongers and others, and are rendered impassable by their goods and fixtures. Added to this, the streets are in themselves narrow, and are unable in ordinary times to accommodate more than the natural traffic. There is need of a few examples being made of those traders who persist in blocking the right of way, and we would advise that summonses should be taken out at once in the most flagrant cases, so that the law may be enforced or proved to be a dead letter. We are certain that our Police Magistrates would soon decide the case by enforcing the penalties provided for abating such gross nuisances as these obstructions undoubtedly are. We would also suggest that a deputation should wait on the Chief Secretary, drawing his attention to these obstructions on our thoroughfares, so that he might direct the Commissioners of Police to issue instructions to the police constables to do their duty under the Police Act.

It is a disagreeable duty, perhaps, for one citizen to point out the public offences of another, but here there is a combination of



offenders and offences, and action must of necessity be taken. We again warn those obstructors that should authorised authority postpone taking the matter up, more than one private citizen will be found coming forward in our public courts determined that the law shall be enforced and the penalties inflicted.

### CORPORATE ABILITY.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Dublin, above all other cities in the United Kingdom, is pre-eminent in the continuously loud complaints heard from gas consumers as to the excessive charges for gas said to be consumed by them, and the erratic amount of light emitted from it. Dublin might challenge any other city in the empire to furnish another instance of the necessity for paying salaries of £300 per annum each to two officials for reporting on the quality and pressure of the gas supplied in it, without regard to the desirability of that pressure (generally ranging from 2 to 3 inches) on the consumers' meters, which were originally tested at a pressure of four-tenths of an inch, and consequently unable to register correctly the bulk of gas passed through the measuring drum-wheel at the great pressure now deemed necessary to force the imperfectly purified and uncondensed gas through them.

No other city in the three kingdoms could furnish an instance of its Corporation appointing a brother of the manager of the Gas Works to the office of Inspector of Public Lighting; nor could a city or town, except Dublin, be named wherein the metered public lamps for a lengthened period had burners consuming more than double the bulk of gas consumed in any of the nine dependant lamps.

Under all these circumstances, no ratepayer or gas consumer in Dublin could have been surprised on reading in the public journals of Monday last the notice of adoption of a report from the head of the Public Lighting Department of the Corporation, wherein it is stated that the cost of the gas consumed in the public lamps during the three months ending January, 1875, was £490 18s. in excess of the sum charged for it in the corresponding quarter in 1874, and bear in mind that the price of gas consumed in the public lights during the quarter ending January, 1874, was 4s. 8d. per 1,000, while that used during the quarter ending January, 1875, cost but 3s. 11d.

Annuling the fact that in four of our Dublin journals all the metered lamps were shown to have more powerful burners than any of the other lamps, and that in a letter addressed to the Commissioners of Police (a copy of which was enclosed in a letter to the Lord Mayor), calling their attention to the fact that at that date (28th November, 1874) such unequal lighting existed throughout the entire of our back streets, alleys, &c.; and that that accusation was not deemed safe to contradict then or now. The Corporation, knowing that gas was being charged for that never was used, adopts a report wherein it is recommended that, in order to save the extra cost, less gas might be used in the back streets, lanes, &c., as was recommended in a former report, and also expressing "deep regret" that that recommendation did not meet with approval, unwittingly reminding us of the lines—

"And thus I clothe my naked villany  
With odd ends, stolen forth of holy writ;  
And seem a saint, when I most play the devil."

I conclude by informing you that the cost of the gas consumed in the public lamps during the quarter ending January, 1875, was more than half the amount of the cost of the gas consumed in the year 1870-1, the number of lamps being only 14 more—the cost of the gas the same.

JAMES KIRBY.

41 Cuffe-street, 31st March, 1875.

### HOME AND FOREIGN NOTES.

New church carillons, by Messrs. Gillett and Blund, from whose factory came the chimes at St. Patrick's Cathedral in this city, and those at Rochdale Town Hall, Worcester Cathedral, Bradford Town Hall, Boston Church, and others, and from whose factory also came the great Exhibition clock of 1872, have supplied to the Church of St. Leonard, Shoreditch, London, a new set of "chimes." The formal opening took place on Tuesday last, in presence of the parochial authorities and their friends. All the airs were duly performed, the machinery proving highly satisfactory. It may not be out of place to notice here that Meredith Hamner, the author of a "Chronicle of Ireland," and who for several years resided in this city and held office in Trinity College in the 16th century, was previously a vicar for many years of old St. Leonard's Church, Shoreditch. Some interesting particulars of Hamner's life, works, and doings—

not generally known in this country—will be found in the late Sir Henry Ellis's "History of Shoreditch."

The Town Council of Aberdeen have given notice to the shopkeepers there that they intend to enforce the Police Act of 1862, which imposes a penalty or imprisonment upon parties who may expose for sale articles of merchandise at the outside of their shop-doors. The numerous cases of theft from shop-doors has led to this notice being given.

**SOCIAL SCIENCE ASSOCIATION.**—The Council of this Association has fixed October the 6th to the 13th as the period for holding the Congress at Brighton this year. It has also authorised an exhibition of sanitary and educational appliances and apparatus to be held at the same time in connection with it.

**LECTURES ON KEYED INSTRUMENTS.**—On Saturday last Sir Robert Stewart delivered the third of his course of lectures on keyed instruments to a large audience. His notices of the history and associations of the harpsicord, spinet, and other cognate instruments that preceded the pianoforte, were very interesting. The musical illustrations given by the talented lecturer and others assisting were much appreciated. Next week the subject of the pianoforte will be treated, in which we hope Southwell and other native makers and improvers of that instrument will come in for notice.

**ARCHITECTURAL ASSOCIATION (ENGLAND).**—For the Session 1874-5 the committee have published a long list of prizes offered. The Association has for some considerable time been doing most useful work, and their list indeed offers strong inducements to the young members of the profession to develop their latent abilities for the love of their art for its own sake or apart.

**A CURIOUS ACTION.**—At the assizes held at Manchester last week, a curious action was tried. The plaintiff was Mr. Timothy Crowther, a solicitor, and the defendant, Mr. George Sheffield, an artist, residing at Withington. In 1808, the plaintiff was about to make a trip to the Continent, and the defendant, being desirous of joining him, it was agreed that, on the condition of the defendant painting a large picture of some scene on the way, the plaintiff should pay the whole of their expenses. They journeyed from this city to Antwerp and back, but no scene was discovered on the way from which the defendant could make a satisfactory drawing. Subsequently, however, he executed a work for the plaintiff, but the latter was not satisfied, and he now sought to recover from the defendant the amount which he had paid for his travelling expenses. The judge suggested that the dispute was one which might very properly be referred to the arbitration of a third party, and after some discussion it was agreed that a verdict should be taken for the plaintiff, subject to an award.

### TO CORRESPONDENTS.

**WATER-POWER.**—We are again asked by correspondents to give the names of some reliable works on the application of hydraulics to various ends and purposes, from mill work to water supply and registration. The treatises upon the subject are numerous, and *en passant*, we may observe that, the one noticed in our present issue is an admirable one. Our correspondents, however, would do well to apply to Messrs. Longmans and Co. or Lockwood and Co., London, publishers, who will forward them a list, from which they can make their choice.

**A STAIRCASE HAND.**—The work of Robert Riddell, published, we believe, by Messrs. Virtue and Co., London, with cardboard model, is a capital one, as we know from careful examination. A new work on "Handrailing" is published by E. and F. N. Spon, Charing Cross, London, which, we hear, is highly spoken of. It is by Mr. John Jones, a practical staircase builder. We have not, as yet, seen the work. The felling mould in this work is said to be also dispensed with, and the rail cut square to the plank.

**ARCHITECT (London).**—The society you inquire about has very little vitality in it, and we cannot honestly say it improves.

**C.E. (Cork).**—The Institute papers, whenever forwarded, are published. The Civil Engineers in London understand their business, and are really civil and obliging, and not "poor and proud."

**AN ARCHITECTURAL ASSISTANT.**—We do not undertake to publish any or all the papers. Some are merely an amplification of theories and views put forward in several standard works and professional publications, others are merely descriptive of works executed or under execution, without anything otherwise original in them to prove a service to the profession.

**"JOHN BROWN."**—In reply to your caustic friend, we have to state that no member of the profession has volunteered to answer his "queries" published a few numbers back. So he is at liberty to answer them himself. We would remind him, however, should he reply, that if he is strong let him be merciful.

**NOR COX (Belfast).**—It is strange that no public competition should be invited in the case of such a large work. Let us have the particulars, and if the facts are as represented, they shall see the light.

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*It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.*

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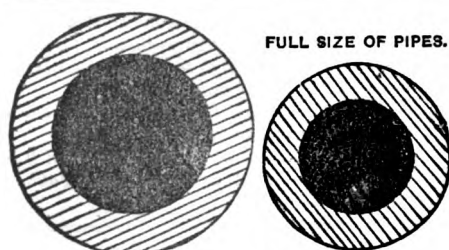
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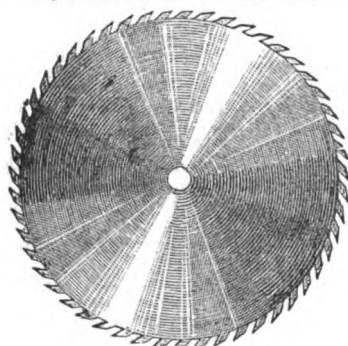
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 Royal Exchange, London.

House of Commons, 2nd March, 1864.

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 cessary.—I am, Dear Sir, your obedient servant,

Messrs. White & Son. (Signed) WILLIAM TITE.  
 From R.O. MINNIE, Esq., Surveyor to Board of Ordnance, London.  
 War Office, Pall Mall, London, S.W.,  
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 tlemen, your obedient servant,  
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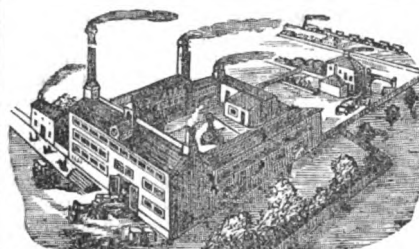
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# The Irish Builder.

VOL. XVII.—No. 368.

*The Literature of Gothic Architecture in Ireland.\**

**A**FTER summarising Bishop Warburton's account of the origin of Gothic Architecture, H. D., in the *Anthologia Hibernica*, proceeds to the disposal of the Bishop's theory in the following manner:—"An examination of this account divides itself into two heads—that which relates to the origin of the Saxon style, and that which treats of the Gothic. Our Saxon ancestors, he says, took the ideas of their peculiar architecture from edifices existing in the Holy Land, whither they resorted for pilgrimage. Now we are to observe the Anglo-Saxons were not converted till the middle of the seventh century, consequently their pilgrimages could not be earlier. Wilfred, Bishop of York, began the church of Hexham in 674, it was a great Saxon building of excellent workmanship, the architects came from the Continent and Rome without the least intimation of their models being taken from the Holy Land. Besides, what necessity was there to go so far, when not only the Continent, but England supplied basilicæ or courts of justice, which the first Christians converted into churches? Of the shape of these were the eastern churches, and that of the Holy Sepulchre is described in the third book of Eusebius's life of Constantine. To say that this architecture of the Holy Land was a corruption of the Grecian is speaking vaguely, the bishop should have traced the sources of this degradation, but this, neither his knowledge of the art or its history enabled him to do. It has been attempted, and successfully, to ascertain the origin of the Saxon ornaments [Ledwich's article on our Ancient Irish churches, in the eighth volume of the *Archæologia*,] if the proofs there alleged have not been decisive they have, at least, not been professedly invalidated."

This is very like Ledwich on himself; and if the above and what follows is compared with his article in the *Archæologia*, and his account of our Round Towers in his "Irish Antiquities," the similarity of the writer's style and mode of treating subjects and dealing with opponents will at once reveal itself. H. D. continues:—

"But it is in treating of the origin of the Gothic style that he weaves with a bold hand the slender thread of hypothesis. When the genial warmth of Spain, says he, had ripened the wits of the Goths, and inflamed their mistaken piety, they struck out a new species of architecture unknown to Greece or Rome. This reverie may do well enough for a poetic fiction, but it is not speaking sober reason or philosophy. Would this learned writer persuade us, as he endeavours to do, that the ancients had not columns, pilasters, or ramifications in the vaultings antecedent to their invention by the Goths, who took the idea of them from their grove temples, where avenues of tall trees intermixed their branches overhead? To induce us to acqui-

esce in this extraordinary notion, he ought to have proved that the Goths practised grove worship, and that their temples were parallelograms. He might easily have ascertained this matter by consulting Wormius's "Monumenta Danica," but Wormius throughout his work, and every other writer on northern antiquities depose against grove worship." . . . .

"Our prelate knew very little of the ancient customs of the northern people, or of their singular superstition, or he would have perceived that his ingenious whimsey was radically wrong, and applicable almost to any other people but those he unfortunately selected. He assuredly never read Eusebius, or he would never have hazarded his credit in asserting the intermixture of branches overhead suggested the first idea of Gothic ramified vaultings. This respected father tells us that the Church of the Holy Sepulchre was committed to the care of Macarius to see it erected, and that Constantine consulted him whether he would prefer having the conch or inside of the roof fretted or wrought with mosaic work. These mosaic and lacunary decorations were probably the original of our ramified and ornamented vaultings in which our Gothic architects displayed such capricious ingenuity."

H. D., or Ledwich, as we are inclined to call him, concludes his examination of Bishop Warburton's theory [by referring to Murphy's theory. We have already in former articles given Mr. Murphy's views, as also James Gandon's opinions thereon; but it will not be out of place to include what H. D. has to say upon the subject:—"Mr. Murphy, in his Observations on the Abbey of Batalha, in Portugal, seems to think he has discovered the origin of the Gothic style in the pyramidal form of all Gothic works—the termination of the building, and its ornaments affecting that shape. But this idea has no foundation beyond the writer's imagination. [We have seen already that Gandon has given an origin of this idea or notion.] This is said without impeaching his merit as an artist, which is very considerable. One property of a pyramid is, that it is a ratio compounded of its base and altitude. Is this property to be found in Gothic buildings? It certainly is not, otherwise it would have been long since remarked by sharp-sighted architectural critics. Gothic buildings should be exactly defined by their different ages in which they assumed different characters as to windows or ornaments; but in one particular they all agree of being of a cruciform shape, with a tower on its intersection. How is it possible for such a structure to be carried up pyramidally? The answer that it is impossible, at once destroys Mr. Murphy's notion. So all that this author can mean by his pyramid is that the pointed arches, pointed windows, and conical terminations give an idea of that figure, which indeed they only can to a warm fancy. His conclusion, therefore, betrays a great want of judgment in architecture and painting."

Several stray notices on the subject of Gothic Architecture are scattered through Irish magazine literature in Ireland towards the end of the last century and the earlier portion of the present, but they are scarcely worth reviewing, as the writers have followed in the wake of one or other of the native critics whose names have appeared in the course of our preceding papers. The litera-

ture of the vexed question of the origin of our Round Towers is a very voluminous one, and some notice of its phases comes within the province of those papers. Our excuse for touching upon the subject may be stated in the words of Mr. Thomas Bell, in his essay on the Gothic Architecture of Ireland—"As the Irish Round Towers, if not in themselves strictly Gothic, were at least the immediate precursors of the Gothic style in Ireland, I trust it will be excusable in an essay on Irish architecture not only to have touched on them, as I have already done, but to offer some further observations on their present state. I do not, however, mean to enter here into the dispute whether they were of Irish or of Danish origin. In either case they answer our purpose as constituting a very prominent feature in the early architecture of Ireland. But it is an almost insurmountable argument against the latter supposition that no vestiges of similar buildings are to be met with in Denmark or Norway, or even in England, where the Danes were so long naturalised."

We agree with Mr. Bell that the Round Towers, as an architectural question, can be treated alongside or in connection with the history of the pointed style and its literature in this country, for no matter what their era, and though the doors and windows of several of them are square, in many more they are circularly and pointedly arched.

Ledwich, of course, has endeavoured with might and main to prove that the Ostmen, or Danes, first erected our Round Towers, and that they were afterwards imitated by the Irish; but all the authorities he has cited upon the question, though their views are interesting in the light of antiquarian theories, in an architectural point of view they are almost valueless. Ledwich, in his *Antiquities*, furnishes us with a long list of those existing in his day. This list was afterwards supplemented and corrected by Mr. Bell. The native writers who have added to the literature of the Round Tower controversy before the days of Henry O'Brien and the late Dr. Petrie are, indeed, many, but of the principal among them it is our intention only to notice; nor will we omit to refer to others, some of them still living antiquaries, artists, and architects, who have not adopted the theory of Dr. Petrie as to origin, though they are quite agreed with him in his views as to certain peculiarities of style indigenous to the early Christian or Gothic Architecture as practised in Ireland.

## THE ARCHITECTURAL REMAINS OF THE CISTERCIANS IN THE COUNTY DOWN.\*

THE architectural remains of Grey Abbey have been spoken of as the most extensive and interesting ecclesiastical remains in the province—in fact they are generally considered almost the only vestiges of any architectural importance in the county; and I always took it for granted that what everyone said on the subject must be true, until, at a friend's request, I proceeded on last St. Stephen's Day to investigate the remains of Inch Abbey, near Downpatrick, which, I was informed before starting, were not worth the trouble. However, it was a frosty, fine day, and I packed up sketch-blocks and tape-line, colour-box and heel-ball, and, lest my day's sport in the archæological line should come

\* See ante, p. 73.

\* By Mr. J. J. Phillips. Paper communicated to the Belfast Architectural Association.



to grief, I packed up my skates, so as to have two strings to my bow.

Arrived at Downpatrick, I took the bearings of the locality generally, and rambled along a road, on the *qui vive* for grist for my mill. I was brought to a stand-still by the Finnebrogue gate piers, which display in their mouldings and general appearance very interesting proofs of the "Gothic feeling," as it is sometimes termed, of the Elizabethan architecture. Travelling further along a lonely road by the edge of water, I arrived at what I afterwards learned was the narrow causeway which forms the mode of communication from the county road to the peninsula of Inch. Looking about me on the deserted road to enquire my way, my eye caught in a familiar object lying among some tumble-down stone walls inside an old gateway. Shades of Grey Abbey! what do I see? A boldly-moulded stone, encrusted with the unmistakable *verd antique*, undoubtedly the jamb of an Early English window, with its mediæval mason's mark and all complete. I looked along the hedge up the narrow "boreen," and saw yet another stone. Notebook out, heel-ball to work, and I have added another mason's mark to my collection; still further, another;—the roadway is hedged in with antiquity and paved with archæology!

I had no notion of where I was going to—not a soul in sight, not a friend to guide me but the familiar features of one moulded stone after another in dyke or in ditch; still on I ramble through field and farm, all marched in with here a fragment of a capital, there a bit of a moulded base—all old friends. Up the hill I scramble towards a deserted lot of old barns and stables. Can these be the remains of Inch Abbey? Nay, surely the Cistercian builder never reared an abbey church on the top of a hill; they cared for their comfort better, as the old rhyme says—

"Because the monks prefer'd a hill behind  
To shelter their devotion from the wind."

But still, tumble-down barn as it evidently is, it has a mediæval feeling in its every stone. See here the cussing of a Gothic window-arch breaking joint with the fragment of an ogee door-jamb; anon a mediæval mason's mark peeps through the crevices of fragments, having an air of hoary antiquity, and besprent with that peculiar green which anyone who has seen Jordan's Castle in Ardglass will ever remember.

Sorely puzzled and perplexed, I look across the *Coiling* river, over hill and dale, toward the ancient town of Down, and endeavour to seek inspiration as to my whereabouts from the orientation of the cathedral. Studying the features of a lovely landscape, on which 700 years ago John De Courcy looked and lusted after; feasting my eyes upon the woodland scenery between, and gradually led to peer down into the valley below me—there, without a guide, I discovered for myself, in a populous solitude of trees and birds, buried in ivy, the unmistakable Cistercian abbey remains of Inniscourcy or Inch. Hurrying down the hill, over grass-covered mounds, and past shapeless boulders of crumbling masonry, through the gap in the gable end of the abbey church, I hasten, while over me steals a solemn feeling of veneration, and I involuntarily slacken speed, and stand in reverential stillness, on my first sight of the interior of the antiquated old fabric. Then to my memory came the words, "Time hath left the deep traces of his destroying hand upon its crumbling walls, and the passing footsteps of bygone years, as they hurried on in their march to eternity, have worn away the quaint carvings from column and shrine; where the setting sunbeams once gilded the deep-dyed windows (rich with the figures of saints and warriors, and all the emblazoned pomp of heraldry) now waves the monumental ivy, with a solemn motion, as if it kept time to the sobbing wind that breathes mournfully over the ruins. The deep and mellow voices of the monks, who here chanted the vespers, have died away; even the high and arched roof, which gave back the rolling echoes, is gone; the vaulted and pillared aisles, where the sounds were prolonged or lost, are fallen;

and the long green grass waves in the silent choir."

At this point I beg to enunciate very distinctly that we need never attempt to study the details and characteristics of the architectural antiquities of Ireland (or, in fact, of any country) without first making ourselves acquainted with the history of its vicissitudes; to be able to pursue intelligently its archæology we must know somewhat of its ecclesiastical and civil changes. Now this study is, of all others in Ireland, the most neglected. Our school boys have at their fingers' ends the minutiae of Grecian, Roman, and English history, but of Irish history or its leading events very many of our educated men are in total ignorance. The theme is *infra dig*, and like the moonshine of fableland is the story of those glorious times when Erin shone like a star of the first magnitude out from the thick darkness which enshrouded the then world, when it was the land of scholars, saints, and doctors, and the fount of Christian enterprise and missionary zeal.

Very much of the cause of the discredit with which its early history is received arises from the somewhat ridiculous manner in which our hagiologists and other native historians have intermixed and interwoven fabulous stories and impossible miracles into the warp and woof of early Irish history; but, very fortunately for our subject this evening, it is possible to ascertain accurately, without any calls upon our credulity or reliance on mere tradition, the precise date and very many of the circumstances of the introduction of the Cistercians into the County Down, as well as into Ireland. Of their introduction into Ireland we will first briefly treat.

One of the most liberal-minded clerics of the early Irish Church in the century of its decline was Malachy O'Morgair, frequently known as St. Malachy (Bishop of Down). When travelling to Rome about the year 1138, for purposes which we need not here explain, he made the Cistercian monastery of Clairvaux a resting-place, and he then contracted the warmest admiration of and friendship for the Cistercian luminary, St. Bernard; they appear to have been mutually drawn toward each other, and the most authentic biography of St. Malachy is that by St. Bernard. Malachy solicited the Pope (Innocent II.) to allow him to retire to Clairvaux, and become a Cistercian monk; but the Pope, perceiving that the Irish Church had at that time much need of men of Malachy's stamp, refused his request.

On his journey returning to Ireland he revisited Clairvaux, and, regretting that he was not allowed to remain there, left four of his companions in that monastery, for the purpose of learning its rules and regulations, and of their being in due time qualified to introduce them into Ireland, saying, "They will serve us for seed, and in this seed nations will be blessed." Some time after his return home he sent some persons to Clairvaux, beside the four whom he had left there, that they might be instructed in the system of that establishment. On this occasion he wrote to St. Bernard, requesting that he would allow two of those four brethren to return to Ireland, that they might provide a place for a monastery; but St. Bernard answered that he thought it advisable not to separate them so soon, to allow them time to be better prepared, that in the meantime *St. Malachy himself might look out for, and prepare a proper place for that purpose*. "When," he adds, "they shall be duly qualified, they shall return to their father and sing the canticles of the Lord in their own country."

St. Malachy yearned for the establishment, in Ireland, of the Cistercian rule of monasticism, and other letters passed between those eminent churchmen on this subject; then St. Bernard, anxious to gratify his friend's wish as soon as possible, sent over the Irish brethren under Christian, one of themselves, as their superior, who was brother to Malchus, a former disciple of St. Malachy at Bangor. He sent along with them also some of the monks of Clairvaux,

so as to make up a sufficient number of members for constituting a monastery. "It was then that the Cistercian house of Mellifont, in the now County of Louth, the first of that Order in Ireland was founded in 1142, and endowed by Donogh or Donatis O'Carrol, king of Ergall or Oriel.

It is an error to suppose that the Cistercian Order was introduced into Ireland by the Normans, or to imagine that because we find such a frequent admixture of "Early Pointed" among its "Romanesque" that, therefore, the Anglo-Norman architects and builders were the authors. The discernment of the Anglo-Romanesque or "Norman" detail, from the characteristic Hiberno-Romanesque requires some training and judgment, and has caused occasional discrepancies to creep into the works of some writers, but we have the unimpeachable authority of St. Bernard, just quoted, that a generation before Strongbow or Henry II. set foot on Irish soil, Malachy, Bishop of Down, had introduced the Cistercians, and they had become naturalised, and, in fact, as we shall hereafter show, nationalised in Ireland, and even in the County Down, in Newry, under the native bishop and the native king of Ireland, long before John De Courcy was bitten by his abbey-building mania.

Their abbey remains, particularly those of Mellifont, Bective, Nenay, Boyle, Baltinaglass, Holycross, and Jerpont, display in their *earlier portions* all the beautiful characteristics of the Hiberno-Romanesque with frequent traces of the Early French; we have in the Chapter House at Mellifont traces of the handicraft of the Irish art-workmen acting under the instructor sent over by St. Bernard, and we have in the remains of the "Lavabo" (incorrectly termed the Baptistry) in the same monastery some very fine Romanesque detail.

As fruits of St. Malachy's admiration of the Order instilled into his mind during his visits to St. Bernard of Clairvaux, the Cistercians had in a very short period monasteries at Fermoy, O'Dornay, Knockmoy, Athlone, and in almost every tribe-land of Meath and Leinster. By the list of Irish Cistercian Monasteries (on the wall) you will see how highly honoured this Order became; its houses had the title of "Abbeys," and more abbots belonging to it were lords spiritual, and as such sat in Parliament, than all the orders put together, for, of fifteen abbots who had this prerogative throughout the kingdom, thirteen were of the Cistercian Order.

This Order in one respect effected a wonderful change in Ireland. Agriculture was much neglected here previous to their advent; the soil had been tilled by the imported Saxon slaves and by the native unfree tribes (*i.e.* the Irish Belgæ). Slavery itself had been interdicted at the Synod of Armagh, dating 1171, but the curse of bondage hitherto hanging over the pursuit of agriculture, caused such occupations to be considered degrading. The Cistercian monks, whose great forte was in the farming of the immense grants of lands and the keeping of extensive live stock, placed such pursuits on the most respectable footing. We have the grants to Newry Abbey by the King of Ireland. It is said to be the only charter extant of any abbey founded previous to the Anglo-Norman Invasion, and it fully shows us the general occupations and aims of those Puritan farmer monks.

The native clergy or Culdee in the north of Ireland were sternly conservative, and in the County Antrim the Cistercians never got foot-hold, except to rear some small chapel or cell, as that at Jordanstown (appropriate to Grey Abbey), the gable of which is still standing. But in the County Down, owing to Malachy's influence, they were early introduced. We give the list of their abbeys in this county in the order of their foundation, viz.:—

Newry, or de Viridi ligno, founded in 1144 by St. Malachy, and richly endowed by Maurice M'Loughlan, King of all Ireland, in the year 1157.



*Inch*, founded in 1180, completed in 1188 by Sir John De Courcy.

*Grey Abbey*, founded in 1198 by Africa, wife of Sir John De Courcy.

*Comber*, founded in 1199 by an Anglo-Norman family, the Whites. Also in *Down* (or *Downpatrick*) was founded one of the two Cistercian nunneries of Ireland, but all information as to its site, date of foundation, name of founder, or its ultimate fate, is lost to us.

Of the Cistercian abbeys of Newry and Comber we shall here have little to say, as they have been completely swept away; and there are no architectural remains unless the font belonging to Newry Abbey, mentioned by the Rev. Dr. Reeves, is still in existence.

We therefore have only to treat of *Inch Abbey* and *Grey Abbey*, both of which are characteristic specimens of Early English architecture at the period when it had worked out its transition in the mother country from the Anglo-Romanesque.

Before proceeding to examine their archæology, let us briefly state the condition of this country at the period of their foundation, in so far as it relates to our subject.

There is no page of English history more interesting than that which opens just prior to the Invasion of Ireland, wherein having followed the fortunes of the greatest masters of warfare as waged in the middle ages, having seen them invincible in England, in France, Italy, and the East, we follow the Anglo-Norman stream as it pours into this country, and find that, after a full century of constant warfare and manful battles, the English host had few and narrow foot-holds in Ireland, and that three-fourths of this country was still unconquered. It is outside the province of this paper to explain the causes. We, therefore, confine ourselves to a brief review of the civil and ecclesiastical state of this country at the period of the foundation of *Inch Abbey* and *Grey Abbey*.

The civil governance of Ireland was undergoing a vast change in that period. The native chiefs, or petty kings, were lost to any sense or love for a national cause, and this unhappy land was divided against itself, was weakened by the long wars of succession of those (truly) petty kings. By one historian we are graphically told, "It groaned under the ambition of five competitors for the sovereignty."

Henry II. made various pretexts for undertaking its conquest, to aid which he seems to have adopted in Ireland the same device which his fathers had adopted to facilitate their aggrandisement of Wales—i.e., he partitioned the country among his enterprising warriors, and "accepted their homage in advance of possession," authorising them to maintain troops at their own charges so as to make good his grant of what never belonged to him, and thus we read from the *Book of Howth* (Carew MSS.) of the conqueror of Ulster:—

"This Sir John de Courcy, being of the house of Breteigne in his mother's side, was one of the strongest men that then was in Europa. The valiantest, the fairest, the courtiest, the soberest, the wisest, the fiercest in Europa was not his like. When he was sent by the prince into Ireland it was given him by patent so much as he had win in Ireland of any land, he and his friends whom he listed to prefer that should enjoy without charge or tribute for his reward of service, saving homage. In all affairs he served King Henry the Second in all his wars. . . . He took with him of the men of Dublinge a few, but they were good and manfully, hardy through all thing[s], so that he had two and 20 knights, fifty squires, and footmen as might be three 100, and went into Ulster, where no Englishman went before him that was ever seen. . . . This John was a man white, and rode then upon a white horse, and bare in his shield i-painted three herons. He went through Mithth and Eriell in three days going, and the fourth day came early to Doune (Down) without any let of any of his foemen, un-

known to any man but his own. He surprised Mac-Dunlevy, King of Down, who retired from the town to collect sufficient men for the recovery of the place. Cardinal Vivian, the Pope's Legate for Ireland, happening to be in Downpatrick at the time, endeavoured to arrange matters by proposing that de Courcy and his troops should quit the locality on condition that Mac-Dunlevy would pay tribute to King Henry; but the English leader having his mind bent upon the acquisition of this province, refused all terms, and with his small but well-organised force, attacked the 10,000 men who meanwhile had been raised to drive him from the country. He succeeded by a hardly won victory in establishing a grasp on the country, which he gradually tightened during successive years, notwithstanding occasional reverses, until he was finally recognised Earl of Ulster. He spoused Godfrey's daughter the King of Man. And after many perilous battles that he did, not without great labour and peril of life and much mischief, at the last he overcame all the country, and castled the land in convenient places, and such place[s] made that none better might be steadfast."

No portion of Ireland, except Wexford, was as thoroughly castled as the shores of Lecale and Strangford Lough. We have remains to this day of castles and keeps, each within a few miles, or signalling distance, of each other. The majority of them are assigned to De Courcy's time; and to evidence the hold which he and his followers took of this locality, particularly in Lecale, we have the statement of that reliable local ethnologist, Mr. Hanna, that the Anglo-Norman element is almost one-half of the present population of Lecale.

Now, it is to be remarked that one of the principal excuses which King Henry made for his long purposed annexation of Ireland was founded on the impeachment, by that Cistercian luminary, St. Bernard, to the Pope of the Irish Church and nation some twenty-two years prior to the first active step of annexation, that in the interim there were various influences at work causing a very vigorous clearing away of the vices for which St. Bernard impeached the Irish nation in 1148. Certain synodical councils had produced salutary effects in ecclesiastical reform, and the generally improved tone and morality of the Irish of that date is a matter of history. The reaction towards a better life had set in, inaugurated by the bright examples of such clerics as St. Celsus, Malachy, and St. Laurence, accompanied by a closer assimilation to the rules and practices of mother church. All this transition was making rapid progress at the period of the Anglo-Norman invasion. We have already shown that the Cistercian monks had wrought very much good in the land, although they were introduced in spite of the opposition of certain of the native monastic bodies and clergy. The monks of the Columban, or native monastic orders, had fulfilled their mission, had for centuries bravely stood the brunt of Pagan persecution at the hands of the followers of Odin; but new organisations of kindred holiness and pious energy had arisen, better adapted to the changing circumstances and spirit of the age. After some struggles against these foreign orders, we find that the national systems of monastic rule were gradually absorbed in the over-spreading influence of the milder Benedictines and Cistercians. We see this instanced in our own province; the Ulidians, or Ulstermen, outside the county Down clung with their characteristic tenacity to the native monastic rule, and for a long time kept out the foreign orders. Even as late as 1208 we learn that the Bishops of Derry and Raphoe, with the Abbots of Armagh and Derry, and numbers of the native Irish clergy passed over to Iona, then under their jurisdiction, and pulled down a foreign unauthorised monastery, and assisted at the election of a new abbot, although after this we read very little of the native Irish orders as such.

In the ardes of Down and the plains of

Lecale the foreign monastic Orders early got admittance, as already shown, under the fosterage of Malachy and the protection of Sir John De Courcy.

The political necessity of ousting the native clergy was condoned by the introduction of the Cistercians and others. This Anglo-Norman chief was of a very devout turn of mind, as all his acts shew; and if from the policy of conquest he broke down the native Irish churches, yet he built on or near their sites more magnificent temples. If he hounded out the native Irish monks, he introduced Orders better adapted to the advancing spirit of the times. If this rapacious foreigner lusted after land and power, yet, unlike the Danish ravishers of the monasteries of Bangor who in the earlier centuries infested the ardes of Down and the Clendeboye, he enriched and improved wherever he conquered. Dr. Lanigan, in his "Ecclesiastical History of Ireland," writes "that in the then fashionable mode of purchasing off sins, and obtaining forgiveness from heaven, he distinguished himself beyond many others." This "fashionable mode" was simply "robbing St. Peter to pay St. Paul," for he turned adrift the native Irish clergy, very often without compensation, and in their places established colonies of monks from various parts of England, as a perusal of the long list of religious houses founded, or rather re-founded, by him will show.

The reputation for sanctity which the Cistercian monks enjoyed obtained for them the patronage of kings and nobles, and no one of any creed attempts to deny the vast good which in their early existence the monastic Orders did for civilisation. When all outside the monastery was seething disorder, inside the cloister a sure haven was for the weak, the learned, and the religious. To the monks we owe the preservation and multiplication of ancient literature, both Pagan and Christian.

This Cistercian Order was a branch or reformation of the Benedictines; it was founded by Robert, Abbot of Molesme, at Cîteaux, in Burgundy, A.D. 1098: hence their name, "the Cistercians." They were also called Bernardines, from St. Bernard, Abbot of Clairvaux, who greatly promoted this Order in 1166. And they had the appellation of "White Monks," from the colour of their habit, which was a white cassock with a narrow scapulary and a black gown, when they went abroad; but when attending the church they used a white one. The nuns of this order wore habits of the same colour with those of the monks, and they dedicated all their religious structures to the Virgin Mary.

Respecting their religious duties and observances, we have much information in their charter of charity. The most fastidious of any creed can find no fault with any rule of this charter, but this topic, of course, we need not follow further. We may remark, however, that after the arrival of the Anglo-Normans, distinctions of nationality crept into the cloister, and a glance at the records of *Inch Abbey* and *Mellifont* will reveal the bitter hostility existing between the English and Irish Cistercian monasteries in this country.

In one of the early courts or parliaments or councils of the invaders, they decreed that no monastery *within the pale* of their jurisdiction should admit any but natives of England as novices—a rule which, according to Donald O'Neill's letter to the Pope, was faithfully acted upon by English Dominicans, Franciscans, Benedictines, and canons regular.

If we refer to the records of some of the Cistercian abbeys on the marches, established prior to the Invasion, we find that they adopted a retaliatory rule, for which they were severely censured by the general chapter of their Order; but the length to which this feud was carried may be imagined by the sweeping charge of O'Neill against "Brother Symon and other religions of his nation," including the Cistercian monks of *Inch*, who openly practised what they maintained, that the killing of a mere Irishman was no murder.

(To be continued.)

PUBLIC RIGHTS AND PUBLIC  
NUISANCES.

## TWENTY-SEVENTH ARTICLE.

THE USE AND ADULTERATION OF ALE, PORTER,  
AND CIDER.

ALE or beer was formerly considered a necessary of life, but a couple or three centuries ago it was a different article from what it is now. Our modern drinking customs have developed systems of brewing that our forefathers could never dream of. Private brewing in the houses of our gentry or nobility here is dying out, though home brewing is much practised in England. Cider is still extensively made in many of the western and south-western counties of England by the farming community, and their agricultural labourers are supplied with a certain quantity per day, which is reckoned in lieu of so much wages. It is, however, the poorest description of cider that is supplied to the labourers, the best being racked off for the farmer's or gentleman farmer's use. When all the juice is well pressed out of the apples and nothing remains but the bruised mash, to this residuum is added a quantity of water, and with another soaking and pressing, and the addition of a small quantity of the made cider, the beverage of the labourer is manufactured. Some farmers and gentlemen farmers, it must be allowed, give their men cider of a good and passable quality, but they are few.

Various ordinances have been passed in former times for regulating the price and quality of ale as well as bread. In Henry III.'s reign it was enacted—"That a brewer may sell two gallons of ale for 1d. in cities, and three or four gallons for the same price in the country." The penny of that time was worth three pence of our currency. At one period, it appears that ale took the place that tea and coffee occupies now, and was used at breakfast. In the reign of Henry VIII. we have it recorded that the Earl of Northumberland lived in the following manner:—"On flesh days throughout the year breakfast for my lord and lady was a loaf of bread, two manchets, a quart of beer, a quart of wine, half a chine of mutton, or a chine of beef boiled." A similar allowance of beer appears in the bill of fare for meagre days, when salt fish and buttered eggs were substituted for beef and mutton. Very few individuals now, poor or rich, mechanic or labourer, would like to take a pint of ale or porter instead of their usual cups of tea. We have known, however, in our experience on several occasions operatives taking porter, sometimes mulled, for their breakfast instead of tea, when local circumstances or the nature of their employment rendered it troublesome or difficult to provide for their usual breakfast.

Ale, as now distinguished from porter or small beer, is prepared from pale malt, and, except in the case of bitter ale, a comparatively small portion of hops. Hops latterly have been dispensed with, and other substitutes used in the manufacture of beer. Strong ale is made from the best malt and the finest kinds of hops. Bass and Allsopp's bitter ales have a larger quantity of hops, which gives them a bitter taste and makes them keep better in hot climates. The bitter taste can be imparted even without hops by several devices. Strong ales contain from 5½ to 10 per cent. by weight of alcohol. Brewing within the present century has been greatly improved by new processes and appliances, and the application of chemical principles. Any of the cereals—wheat, beans, peas, &c.—can be used in brewing, but barley is the best adapted for the production of beer. The different kinds of malt—pale, amber, and brown, may be produced from the same kind of barley by varying the heat of the drying kilns. It is pretty safe to assert that there is scarcely an article sold which is more frequently adulterated than beer. Some of this adulteration takes place in the brewing, but the most villanous adulteration takes place in the hands of the retailer.

For the manufacture of bitter ale large quantities of quassia are annually imported to replace the hops. In the sister kingdom the beer doctor has become a regular trade, and the following ingredients are extensively used in the adulteration of beer:—Quassia, gentian, and wormwood to give bitterness; ginger, orange-peel, and caraway to impart pungency; alum and blue vitriol to give a frothy head; cocculus indicus, nux vomica, and tobacco to intoxicate, and salt to produce thirst. Other substances are also used to produce the same effects.

According to an analysis made by Dr. Wanklyn, Bass's bottled bitter ale contains in 100 cubic centimetres, 5·8 grms. of alcohol, 5·52 of organic residue, and 0·86 of ash. A sample of draught ale costing 2d. a pint in London contained in 100 cubic centimetres 4·7 grms. of alcohol, 5·8 of organic residue, and 0·32 of ash; a sample of London porter, 8·3 grms. of alcohol, 4·45 of organic residue, and 0·80 of ash. The analyst says, in examining a specimen of beer said to be adulterated, the first point to be made out is whether it is strong enough for the price at which it is sold. If it does really contain as much alcohol and malt extract (*i. e.*, organic extract) as it ought to do, that fact is very strongly against it being sophisticated. The organic extractive matter yielded by beer consists of dextrine, sugar, lupuline from the hop, and also the residual gluten in a more or less altered condition. The inorganic matter, the ash, consists in great part of phosphates. The adulteration by salt is detected by means of a determination of the ash, and under such conditions the ash would be found to be extensive. Two of the principal inorganic adulterations are picric acid and cocculus indicus. The former may be detected by its power of colouring wool. If white wool be boiled with the beer adulterated with picric acid it will be stained yellow, the stain being permanent when the wool is washed. In addition to picric acid and picrotoxin, it is stated that strychnine is used as an adulterant. How far will not the villanous system of adulteration be pushed when our most active poisons are used for the intoxication and murder of our people! A grave duty devolves upon our public analysts and our new sanitary boards, for without they efficiently discharge their duties and instruct the sanitary inspectors under them how to act, a system of slow but certain poisoning is sure to be carried on with impunity. Although we are no advocates of the liquor interest, yet as ale, porter, and cider is still extensively used as a beverage, and the former, too, particularly in this country at our dinner tables, it becomes a necessary duty to guard the public against the dangers of a pernicious and destructive system of adulteration.

It is to be regretted that not only the working classes, but all classes of society, indulge so much in the use of intoxicating drinks to the ruin of themselves and their children, and to the filling up of our poor-houses, lunatic asylums, and prisons, with paupers, idiots, and criminals. Formerly, perhaps, there was more whiskey drunk in this kingdom, and wine, in proportion to the inhabitants, than at present; but since the duty was raised on spirits, some years since, ale and porter by the industrial classes is consumed in larger quantities. Citizens of Dublin need scarcely be informed of the gigantic trade of the Messrs. Guinness in this city, and of other brewers; both the home and export trade of beer, in this country, has enormously increased of late years.

Excellent cider was manufactured in Ireland in large quantities in the last century, but the trade has long since died out. French claret and other cheap wines were consumed in immense quantities in Ireland in the eighteenth century. Considering the small population of Ireland a century or upwards since, it was computed in the year 1758, 8,000 tuns were imported, the very bottles of which were computed to cost £67,000, and wine at that period, and for

long years afterwards was still on the increase. Sir William Petty remarked in his day, when in Ireland, that the number of ale houses to the number of other houses was almost one-third, and from a computation of the city and the liberties of Dublin, taken in 1749, at a medium for some years preceding, the number of public houses was as follows:—Ale houses, 2,000; taverns, 800; brandy shops, 1,200; giving a total of 3,500, a gigantic number indeed considering the then population of this city.

The moderate use of ale or porter may be said to be beneficial if it can be had of pure quality, but what guarantee have the mass of our people who waste their earnings in public houses and beer shops, that the liquor they drink is of good or even middling quality? Some of our Dublin brewers turn out a good article, but few of our retailers sell it as it is received.

The cider ordinarily sold in Dublin or London public houses, in the summer time, is as unlike the good home-brewed cider of the south-western districts of England, as water is unlike fresh cows' milk. Pure cider is a delightful summer drink, and we would like to see it manufactured in this country to the displacement of other liquors. Cider, however, when drank in large quantities will intoxicate as well as beer. Heather ale or beer was formerly manufactured in Ireland, and in our own memory we have known one or two attempts made in this country to revive the manufacture. The tops of common heath have been used instead of hops in drink. The common broom has also been used in this island instead of hops; and it is related by Ruttie in his Natural History of this country, that the beer impregnated with the broom was very intoxicating. The wild crab apple of this country was used formerly for the production of cider, and the expressed juice was sometimes used in whiskey punch instead of lemon juice. The fruit of the black thorn or sloe tree was used also for the manufacture of cider, as were the leaves for the adulteration of tea. Even the national plant, the potato, was pressed into service by being malted and managed as barley, and a liquor like ale manufactured from it.

We could cite several other plants and vegetables once utilised for the manufacture of beer of different kinds, and also for its adulteration, but we have possibly stated enough for our purpose. The providing for the future food of our population in these islands is a serious problem, and it will be for our statesmen to consider before many more years pass by, whether our food resources are to be any longer threatened, and whether a limit must not be soon put by legislative enactments to the waste of human food by the existence of trades that contribute so much to human debasement.

## MICHELANGELO.\*

(Continued from page 95.)

MICHELANGELO's first visit to Rome may fairly be regarded as an epoch in his life. He was in his twenty-first year, full of youthful hope and strength, and thirsting for distinction. His delight at what he saw at Rome is expressed in a letter to his patron Lorenzo, at Florence. He found, he says, so many beautiful things, that he had not been able to find time to deliver his letters of introduction, excepting the letter for the cardinal. He had tried to recover his Cupid from the dealer, who had abused his confidence, but in vain, and he had purchased marble, and was about to work on it at once.

Few of us are, I think, unconscious of a spell which the very name of Rome exercises upon us, a spell deepened into enthusiasm by presence in the midst of it. We can better sympathise with the ardent young artist, so excited by the works of art around him that all his business cares are forgotten.

It may, perhaps, be interesting to try to

\* Professor E. M. Barry's second lecture at Royal Academy, March 1st.

realise what he saw; for it was not our Rome which Michelangelo entered. The rock of the Capitol was bare, and he could not have foreseen that group of palaces which he afterwards placed there, and which are to us one of the great features of the city. The narrow streets, thronged by day, were closed at night by chains. From the Capitol there was no sign of modern St. Peter's, nor did there exist any of the countless domes, which to the modern visitor, seem to be associated with the very name of Rome.

The old basilica of St. Peter's was still standing, and squalid houses covered the space now occupied by the great square, with its encircling colonnades, and rushing fountains.

The Vatican, a small and poor commencement of the present huge structure, was dwarfed by the Castle of St. Angelo, then as now the citadel of Rome. From his chamber at the Vatican, the Sovereign Pontiff could pass by a covered passage to his castle,—a facility not to be despised when cardinals, with their attendants, might be seen galloping about in complete armour, and corpses were daily to be found in the streets, victims of the dagger or the poisoned bowl.

Such was the Rome of Michelangelo, as regarded its every-day aspect. Its old-world life, however, must have been explored by him with absorbing interest. The marvels of old Rome were spread out before him, as before ourselves, and we can picture the intense delight with which each newly-excavated statue from temple, bath, or villa, would be welcomed. Each day would bring to light fresh wonders of art, and seem to link together the Past and the Present.

Michelangelo remained at this time only about two years in Rome, but before he left it he had established a commanding reputation, although his connexion with the Cardinal de San Giorgio was soon terminated,—not to the loss, probably, of his fame, or safety.

Some doubt hangs over the works which Michelangelo is supposed to have executed at this time, but his statues of Cupid and Bacchus are well known.

The great work, however, which stamped him as the first of living sculptors is the celebrated *Pieta*, now in St. Peter's. Other works of Michelangelo may better reveal his power than this masterpiece, but nothing can test his skill for delineating the softer emotions. The attitude of the youthful mother bending over her son, inconsolable, but yet sublime, as his yielding form rests in her arms. A fac-simile of the latter is before you, and the perfection of the details and the grace of the composition combine to mark the whole work as one of the triumphs of plastic art. As such it was regarded at the time, and Michelangelo's position was at once established. His fame soon spread from Rome to the city which claimed him for its own, and about the year 1500, soon after the death of Savonarola, he was induced to return to Florence.

Resuming his labours with characteristic vigour, he set to work on a Madonna, and some other works of sculpture, including fifteen marble statues for Siena, but the work which chiefly marks this period of his career is the famous "*David*."

A great block of marble, 18 ft. high, was lying in the courtyard of the cathedral workshops. Originally intended for the colossal statue of a saint for the decoration of the exterior of the church, it had been only partially worked. From some cause the sculptor, Simoni di Fiesole, had withdrawn from the work, and the idea had in consequence been abandoned. Michelangelo was then appealed to, and he undertook to produce a colossal statue of David from the block as it stood, and without any addition being made to it.

Two years were allowed for the task, and he at once began on the marble. He is said to have been so eager to commence, that his only work of preparation was a little wax model, and he devoted himself to the statue with such absorbing application that he

trusted no hands but his own, and from the first touch, in 1501, to the last, in 1504 (for he was a little beyond the stipulated time), he did the whole of the work himself.

A difference of opinion ensued as to its ultimate position. Some thought it should be placed in the Loggia, others in a church, or in the courtyard of the palace. It is interesting to notice the opinion of Giuliano di San Gallo, then in the height of his fame as an architect. He pronounced in favour of the Loggia, because, he said, the marble was tender, and would be injured by exposure, as has indeed been the case. In this advice he was supported by Leonardo da Vinci, but as Michelangelo did not approve the suggestion, his views naturally prevailed, and the "*David*" was placed in the square, near to the gate of the palace.

Four days were taken in moving the colossus from the sculptor's studio, and on the 18th of May, 1504, it was finally placed in position. During its progress, such was the jealousy with which Michelangelo seems to have been regarded by rivals, that stones, we are told, were thrown at it, and a guard had to be appointed to defend the statue from the attacks nightly made upon it.

Florence was at this time the centre of the arts, for Michelangelo, Leonardo da Vinci, Raffaello, with other artists of lesser eminence, were all contending there in honourable rivalry. Michelangelo had always deemed himself a sculptor before anything else, but he was now induced to enter the lists, as a painter, with Leonardo.

The Florentine Government wishing to decorate with paintings the two great side walls of the council chamber in the Palazzo Vecchio, entrusted the commission for one wall to Leonardo, and that for the other wall to Michelangelo. Unfortunately for art, neither task was fully executed. Michelangelo did not proceed beyond the preparation of his cartoon; and Leonardo da Vinci, though he commenced his painting on the wall of the council-hall, never finished it, and the part which was executed faded away in consequence of some defects in the colours, or the ground, such as those which have so fatally dealt with his "*Last Supper*" at Milan.

The subject of Michelangelo's cartoon was suggested by the war which had been raging, more or less, for centuries, between the Florentines and Pisans. The cartoon shows a group of Florentine soldiers, bathing in the Arno, where they are surprised by a sudden attack. It has always been considered a most masterly study of the nude, and Benvenuto Cellini declared that "though the divine Michelangelo afterwards painted the great chapel of Pope Julius, he never again fully realised the force of these, his earlier studies."

The fate of this great work is melancholy, for it seems to have been purposely destroyed, from unworthy motives of envy, in 1512. Vasari attributes this work of Vandalism to Bandinelli, a rival, and disciple of Leonardo da Vinci, but however this may be, it is certain that the cartoon was cut into fragments, and mutilated. Some scattered portions found their way to different places, and were afterwards engraved by Marc Antonio and Andrea Veneziano.

There is a copy of the first of these engravings in the "*Illustrations of the Genius of Michelangelo Buonarroti*," by the late Commendatore Canina, Professor Cockerell, and Mr. Harford; and I think you will find it well deserving of attentive study. In it, three soldiers are represented just emerged from the water. One is climbing the bank, another leaning over it to offer a hand to a comrade in the water; the third is pointing to the enemy, who is seen in the background, masking his advance through a group of trees. These figures in the original were the size of life, and were drawn in black chalk, with white lights and brown shadows.

It is certain that the cartoon was regarded by his contemporaries as a new triumph of its author, and Vasari attributes to its influence the first inspiration of the grand style

of art to Raffaello. Sir Charles Eastlake so far agrees in this view, as to point out that from the time when Raffaello studied the cartoon of Pisa (as it was called), a closer study of anatomy and form is to be seen in his works.

Michelangelo had now shown his power as a painter, as well as sculptor, while literary studies did not cease to engage his attention. The best prose writers of his country, and the works of the Tuscan poets, were the delight of his hours of relaxation from his heavy artistic labours.

Such were the daily habits of Michelangelo in Florence in the prime of life, and strength; when he was summoned to Rome by the Pope. Julius II. now wore the tiara, and was resolved to distinguish and exalt his rule by all possible means.

We have before met with the architect San Gallo in council at Florence. He was now in Rome, and being imbued with admiration for the genius of Michelangelo, he brought the name of the latter before the Pope, who at once called him to his presence.

The Pope, determined above all things to give lustre to his rule, was also a real lover of art, and wished to assemble round him artists and men of letters. He was the originator of the modern St. Peter's, the paintings in the Sistine Chapel, and the halls of the Vatican, and with his name will ever be connected those of Bramante, Raffaello, and Michelangelo. To the latter he at once accorded his special favour, and entrusted him with a design for a mausoleum, to be erected in his honour in the old basilica of St. Peter's.

I shall take another opportunity to call your attention to this work, which may be said to have embittered the rest of Michelangelo's life. At present all was sunshine, and the Pope used to visit the great sculptor in his studio, without ceremony, and, as Michelangelo himself said, with the cordiality of a brother. After a time, however, a coldness seems to have arisen, and Michelangelo was not the man to tolerate a slight from any one, however exalted his station.

An instance of his manner of dealing with such cases had previously occurred in Florence, in respect to the picture of the Holy Family, which Michelangelo had painted for Agnolo Doni for 70 ducats. When Doni received the picture, he said the price was too much, and forwarded only 40 ducats. The artist, on this, sent a messenger to say that the picture must be at once returned by the bearer, or an increased price of 100 ducats paid for it. Doni then offered the original price of 70 ducats, but was astonished to be told that in consequence of this insult he could now only be allowed to retain the picture if he instantly paid 140 ducats, which he was forced unwillingly to do. We may suppose that he did not again attempt to bargain with an artist so resolved to uphold the dignity of his profession, and we may further conclude that such a man as Michelangelo then was, brought to his transactions with Pope Julius a spirit as proud and lofty as his own.

An outbreak soon occurred, and Michelangelo took grave offence at a refusal of audience. It has been asserted that Bramante was jealous of another's influence with the Pope, and that he had sought to cool the ardour of his master on the subject of the mausoleum, by suggesting that it was an evil omen for a man to build his own tomb.

The Pope, always impetuous, may have also been irritated by what appeared to him the slow progress of the work. However this may be, Michelangelo saw in the refusal of audience a studied insult. He exclaimed to the officer who repulsed him, "You may tell the Pope that should he wish to see me again, he will have to seek me elsewhere."

Waiting for no reply, he rushed from the Vatican, took horse, and by two o'clock on the following morning was at Poggibonsi, on Florentine territory, and beyond the limits of the Papal rule. He had written to the Pope before leaving Rome, and Julius had at once sent messengers to stop his departure,

and to bring him to his presence, even by force if necessary.

Michelangelo's movements were, however, marked by his characteristic energy, and when his pursuers came up with him he was on Florentine ground. He flatly declined to turn back, and went on to Florence, where he was received with open arms. Julius, not accustomed to be foiled, at once sent a brief to the Florentine Government demanding that they should send the fugitive artist back to Rome.

As this was not complied with, other briefs followed, and it became evident to the Florentine rulers that Michelangelo could only remain at Florence, at the cost of war with the Pope. This was a serious state of things for which they were not prepared, and Pietro Soderini, who was the ruling spirit at Florence, hit on the expedient of sending back Michelangelo to the Pope as the ambassador of the Florentine Republic, and thus protected from his wrath.

Michelangelo was at last induced to consent to this arrangement. He had hitherto shown a resolution at least equal to that of the Pope, and had declared that if his countrymen forced him to leave Florence, he would transfer his services to the Sultan, and would fix himself at Constantinople. The new proposal, however, seemed to promise an escape from all difficulties, and on the 21st of August, 1506, his letter of recommendation was made out, and our artist found himself invested with ambassadorial dignity.

Julius was about this time at Bologna, which had just been taken by the Papal troops. Here he was found by the new ambassador, who was soon taken again into favour. The Pope, proud of success, requested Michelangelo to execute a statue to commemorate his victory. This was to be a bronze statue of the Pope, for the Church of St. Petronio. Michelangelo at once undertook the task, for his supposed diplomatic duties were evidently nominal, and had already served their purpose.

The character of the Pope peeps out in the history of this statue. The sculptor's design gave the right hand raised, in the attitude of benediction, and it was suggested to place a book in the left hand. The Pope, however, objected, and when asked what he wished to have, said, "A Sword. I was never addicted to letters." Nor was he contented with the position of the right hand, until assured that the attitude would do as well for one of menace as for blessing. "Holy Father," said the artist, "it menaces the people, in case they should prove rebellious." The statue was finished, and placed in its niche; but, unfortunately for art, it was destroyed by popular fury some years afterwards.

(To be continued.)

#### SOCIETY OF BRITISH ARTISTS.

THE fifty-second exhibition of this society opened last week, and between nine and ten hundred pictures are displayed on the walls of the galleries. The objects are numerous enough, but pictures of real merit are few. The "Hanging Committee" might be addressed in the words that the late Mr. LeFanu, our native novelist, put into the mouth of Shemus O'Brien, in his racy ballad of that name, "If ye want hanging yourselves ye must hang." According to our contemporary the *Builder*, "The mass of the exhibition unhappily reminds us of the epigram on a *dilettante* whose social merits are set forth with the saving clause—

"But Heaven preserve us from his fiddling,  
It is so very, very middling."

Indeed there are not a few productions to which even this faint praise must be denied. Why any one should paint them, and why, when painted, they should be hung in a public place (unless as a warning) we cannot undertake to conjecture.

Among the pictures there are some possessing an Irish interest, some deeply and others very slightly. Girardot's screen scene

from the "School for Scandal," "Katey's Letter," by Haynes King, and "The Home Ruler," by E. C. Barnes. The latter, however, has nothing political in it, and it only represents a mischievous little girl rough handling or tyrannizing over her doll. Sir John Gilbert sends a picture illustrative of passages in Don Quixote, and Sir Francis Grant a "Small Study from a Full-length Portrait," being an officer in uniform. The few good pictures in the exhibition, among which are some well-executed water colour drawings, are not sufficient to redeem the exhibition of the year from the stricture passed upon it by our contemporary. Artists must live in these times, and "pot-boilers" will be painted and hung to be seen and be sold, for is this not an age of art and artifice?

#### DESIGN FOR PROPOSED GLEBE HOUSE, RATHMINES.

We illustrate in this number the design submitted in competition for proposed glebe-house, Rathmines, by Mr. A. W. Robinson.

The amount to be expended was not to exceed £1,200, including architect's fees, and the estimate to include boundary walls, entrance, and drainage.

The accommodation required was—1st, a parlour and drawingroom, connected by folding or sliding doors, and a study; 2nd, four bedrooms and a bathroom; 3rd, breakfast parlour, kitchen, scullery, servants' room, with the necessary adjuncts of w.c.'s, coal vault, and ashpit. This plan was designed to have upper stories executed in red brick, with moulded and blue bricks introduced, and cut-stone heads, corbels, strings, &c. Lower storey to be carried out in chiselled granite work.

Acting on the advice of the council of the Royal Institute of Architects, the Select Vestry submitted the designs to Mr. J. Rawson Carroll, for adjudication, who decided in favour of the plan sent in by Mr. Thomas Drew. This design was one of four specially considered.

#### BOOKS RECEIVED.

*Hydraulic Tables, Co-efficients, and Formulae for Finding the Discharge of Water from Orifices, Notches, Weirs, Pipes, and Rivers.* By John Neville, Civil Engineer, M.R.I.A., County Surveyor of Louth, and of the County of the Town of Drogheda, Fellow of the Royal Geological Society of Ireland. London: Lockwood and Co.; Stationers' Hall-court. 1875.

IN a more convenient size, and considerably improved, with additions consisting of new formulae for the discharge from tidal or flood sluices and syphons, and with general information on rainfall, catchment basins, drainage, sewerage, water supply for towns, and mill-power, Messrs. Lockwood and Co. have issued Mr. Neville's work. For both the student and practising engineer the present edition will be found handy and serviceable. It contains, indeed, a vast number of different hydraulic formulae, and very extensive and correct tables for finding the mean velocity of discharge from various shaped orifices, with experimental results; co-efficients, effects of friction, and most matters appertaining to water supply and drainage, and the application of the science of hydraulics as a whole to the varied purposes and ends of civil engineering. The last three sections of the work, treating of rainfall, catchment basins, discharge from sewers, water supply of towns, sewerage estimates or cost, and water-power, as variously applied, will be found interesting and valuable to many even outside the profession.

It would not be amiss for intelligent members of many of our present urban and rural

sanitary boards to provide themselves with a volume like Mr. Neville's for reference. It would inform them of many particulars of which they are woefully deficient, and prevent them betimes, perhaps, of talking glibly of matters of which the majority of them understand but little. Engineers can do many things if they are voted the supplies, but the schoolmaster is still abroad from many of our public bodies in this country, and it would need something more than the strongest hydraulic pressure to lift them up to that position they should occupy as intelligent local parliaments, established for the promotion of towns improvement and the conservation of the public health. In a notice in our last issue of Professor Downing's excellent work, we took occasion to give a brief review of the progress of hydraulic engineering, and, in allusion to this country, we instanced a paper by Dr. Mathew Young, in the early Transactions of the Royal Irish Academy. At the time of our writing we did not remember of any mention being made of this paper in the works of any of our modern engineers. We considered it worthy of notice, and we said so. We are glad, however, to find that Mr. Neville takes cognisance of the paper, as well as the earlier experiments in the last century by Dr. Bryan Robinson [*vide* Helsham's Lectures, Dublin, 1739]. Of the former author's mode of demonstration as to the velocity of spouting fluids, Mr. Neville writes—"Dr. Matthew Young determines the value of the co-efficient for an orifice 2-10ths inch in diameter, with a mean head of 14 inches, to be .623. The manner in which this value is determined is very elegant—viz., by comparing the observed with the theoretical time of the water in the vessel sinking from 16 inches to 12 inches."

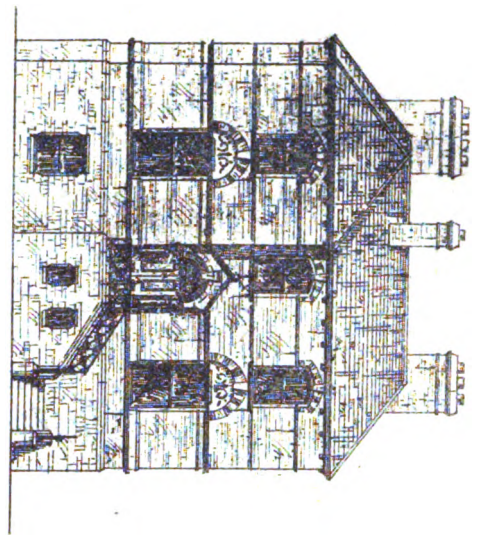
We are pleased to see one member of the Royal Irish Academy at the present hour thus noticing a paper written by another as far back as 1738, and at a time when so little was known in this country of practical hydraulics, and when the profession of civil engineer and architect were one and undivided. It is interesting and instructive to compare the different tables of co-efficients given by Mr. Neville from those of earlier writers, abroad and at home, including the experiments of Robinson, Young, Michelotti, Bossuet, Brindley, and Smeaton; Du Buat, Poncelet, and Lesbros; Rennie, Blackwell, and Simpson, and others. The tables from I. to XIV. given by Mr. Neville, are all new, with the exception of the first, containing the well-known co-efficients of Poncelet and Lesbros. Yet these are newly arranged, the heads reduced to English inches, and the co-efficients for heads measured over and back from the orifice, placed side by side for more ready comparison.

The tables of velocities and discharges over weirs and notches are calculated for a large number of co-efficients to meet different circumstances of approach and overfall, and for various heads from  $\frac{1}{4}$  of an inch up to 6 feet. We agree with the author in his present introduction to the third edition of his work, that the statistics of rainfall and of catchment basins have not received the full attention which the subject demands, and that the distribution of rain gauges, with reference to elevation, contour, temperature, and isothermal lines has been sufficiently attended to.

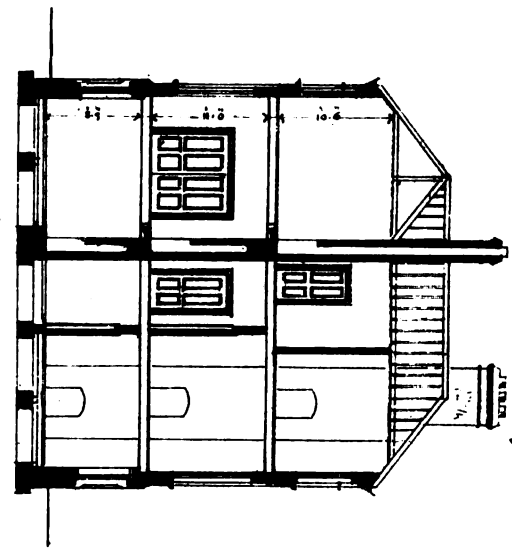
The storage and supply of water for the wants of the future is a matter that must command attention, for, in view of the increase of population and the maintenance of the public health, it cannot be ignored save at a terrible cost. Bearing upon this matter, Mr. Neville observes in his introduction—"The connection of the rainfall with the discharge generally for the whole catchment, for the tributary catchment, and their sub-catchments, at the sea, in the middle districts, and at the sources, nothing; the geology, must be observed for several years before the questions of supply, discharge, absorption, and evaporation in any



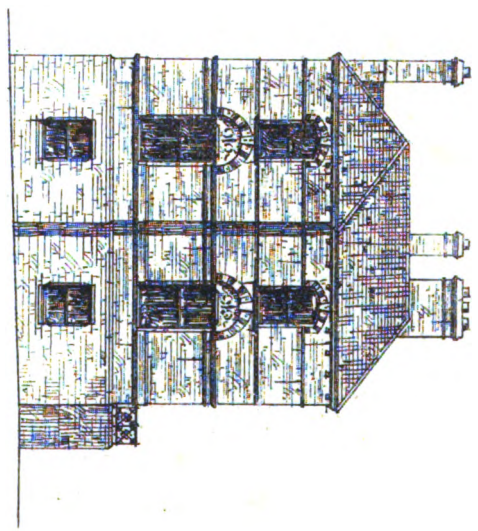
*Proposed Glebe House at Rathfriland.  
Design submitted in Competition.*



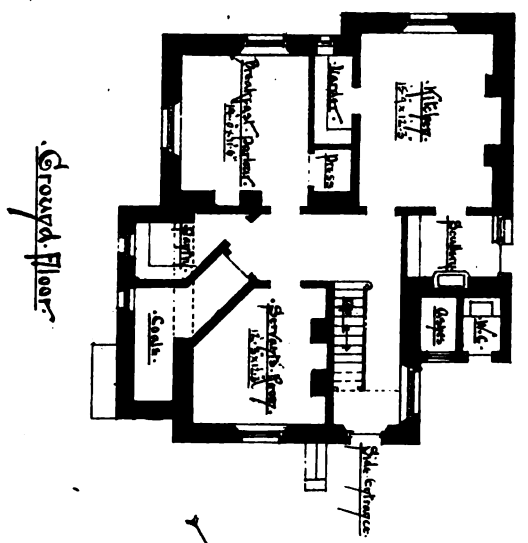
Front Elevation.



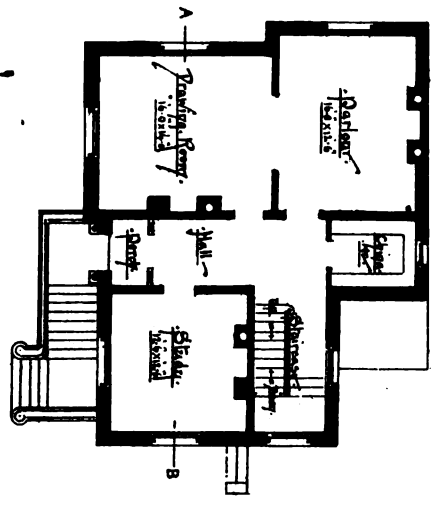
Section A-B



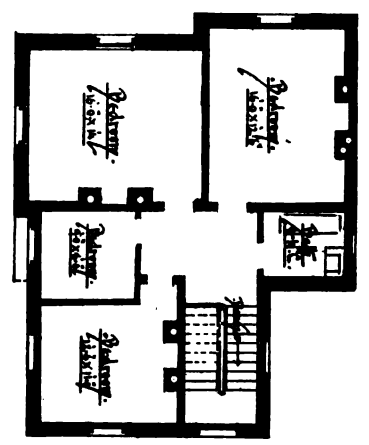
Side Elevation.



Ground Floor.



Principal Floor.



Upper Floor.

*See opposite page 56*





climate can be answered. The maximum and minimum discharges in each year and series of years must be observed, as well as the average mean discharges, and the maximum and minimum of these also, before the physical connection of climate and catchment can be correctly ascertained, and the engineer furnished with reliable data. Heretofore observations, even when of the best, have been partial or limited, and a wide field is here yet open to competent physicists in connection with our drainage works. Mr. Symon is now, however, reducing the rainfall in Great Britain and Ireland to a scientific form."

Perhaps it is a sign of the times to add that on the first of this month the *Times* newspaper appeared with a chart of the weather, and that this useful feature appears daily in that journal. If we could make rain come when we liked it might, after all, be a dangerous privilege to be enabled to exercise. When meteorology, however, is established on a firm basis and reduced to an exact science, we will know something more about rainfall, and perhaps be better prepared to utilize it for the common weal. The fields of both the civil engineer and architect are becoming enlarged, and as knowledge increases so does power, and a number of new wants. Though it is the province of the civil engineer and architect to apply hydraulics as a science and a power, it is the duty of all men to be acquainted more or less with its application or usefulness, for it has a very close relationship with our common wants and requisites.

We may find time on an early occasion to return again to the volumes of Mr. Downing and Mr. Neville for purposes connected with the public benefit and national welfare.

#### ALEXANDER THOMSON, ARCHITECT.

THIS well-known Glasgow architect died on the 22nd ult. He was distinguished with the appellation of "Greek Thomson," as all his works were of the Classic school. We had a slight acquaintance with the deceased gentleman, and during a visit to Glasgow three or four years since we had a conversation with him on literary and architectural matters connected with the profession. He was at the time engaged upon the work, if we remember aright, of the Queen's Park U. P. Church, and while at his office he kindly showed us the drawings he made for that important and well-executed edifice, and made an appointment with us to meet us at the site to go over the building then in course of erection. Mr. Thomson was a native of Balfour, Stirlingshire, and settled as a boy in Glasgow as far back as 1824. He was for some years in partnership with his brother-in-law, Mr. John Baird, but subsequently he joined his brother, Mr. George Thomson, under the firm of A. and G. Thomson, with whom was afterwards associated Mr. Turnbull. Among the late Mr. Thomson's chief works of an ecclesiastical kind are the U. P. Church, Caledonia-road, the U. P. Church, St. Vincent-street, and the U. P. Church, Queen's Park, already alluded to. He designed several public edifices and domestic buildings in Glasgow and its suburbs, among which are the Egyptian Hall, Union-street, a row of buildings in Gordon-street, two large buildings in Sauchiehall-street, a building adjoining the Mechanics' Institute, and several others of lesser note. Mr. Thomson was for two years the President of the Glasgow Institute of Architects, a position at present filled by Mr. Baird, his brother-in-law.

A couple of years since Mr. Thomson delivered a course of able lectures in Glasgow, which evidenced extensive knowledge of the subject of architecture and kindred arts. The deceased gentleman's loss must be felt not only in Glasgow, but by members of the profession in London and elsewhere. He was always willing to contribute information

when asked, and occasionally contributed papers to our professional contemporaries in London. Mr. Thomson had been in failing health during the winter through an attack of bronchitis, but, notwithstanding, he continued to work up to a few days of his death. At the time of this sad event he had nearly reached his fifty-eighth year, and, more sad still, he leaves a widow and seven children to lament his loss. From our knowledge of the deceased gentleman, and an intercourse with others better acquainted with him in Glasgow, we believe that he was a frank, outspoken, and thoroughly honest man, an able architect, and one well deserving of all the respect that has or may be shown to his memory by his countrymen or professional brethren elsewhere in these islands.

#### CIVIC LYRICS.—No. LXXXIII.

##### LOCAL POLITICS.

Many men of many schemes,  
Delving in the land of dreams;  
Many castles in the air,  
Many spiders weaving there;  
Many members wide awake,  
Some that brew and more that bake;  
Many crechets, many tricks—  
Such are Local Politics.

Many doctors, many quacks,  
Many lawyers climbing backs,  
Many agents of a mind,  
Trying hard to raise the wind;  
Many clerks with pens in ears,  
Quite enough of engineers.  
Trouble, trouble, rubble, sticks—  
These are Local Politics.

Many resolutions grand,  
Many works long years in hand,  
Many reasons why they're not  
Gone, like others, off to pot;  
Many wants o'er which to mean,  
Waiting for the promised loan;  
Many cuffs and many kicks—  
These are Local Politics.

Many men unfit to think,  
Full of clatter and of drink;  
Many folks too wise by half,  
Some who bully, more who chaff;  
Few indeed, if any, fit  
At a council's board to sit.  
Ah! the city 's in a fix  
With such Local Politics.

CIVIL.

#### THE LATE SIR JOHN GRAY, M.P.

ALTHOUGH not connected with the architectural or engineering professions, yet from his public capacity and long connection with the Corporate interests of this city, a brief notice of our deceased fellow-citizen will not be out of place in these pages. It is difficult to say anything of the career of the late Sir John Gray, without entering on political ground, and the nature of our publication almost debars us from touching upon what is strictly politics.

The deceased gentleman was born, we believe, in the County of Mayo, in the year 1815, and was intended for the medical profession. About 1841-2 he became connected with the *Freeman's Journal*, took part in all O'Connell's agitations, became a fellow-prisoner with O'Connell, and, after his death, though he did not wholly fling himself into the "Young Ireland" movement, yet he exhibited strong leanings towards it in 1848. When Thomas Davis was living, and when the Young Ireland school was merely a literary school, the then Dr. Gray associated much with the young men of that party, and his name was booked for a volume in "Duffy's Library of Ireland," which, however, he never wrote, a variety of circumstances intervening. The secession between O'Connell and the Young Ireland party took place in 1846. Dr. Gray sided with O'Connell. We must, however, forbear to enter further into the politics of those days.

As a member of the Corporation of Dublin for many years, the deceased gentleman is better known, and for the active part he took in connection with the Waterworks of this city. He was a strong advocate of the

Vartry scheme, and showed considerable tact and perseverance as Chairman of the Waterworks Committee. For these and other services he received the honour of Knighthood from Lord Carlisle when Viceroy here. It is needless to say, perhaps, that on some public grounds we differed with the deceased gentleman, but our difference of opinion will not prevent us from saying that he rendered this city an essential service in connection with its water supply, although the scheme turned out a costly one. Good water, however, is an article worth paying for, and, as sanitarians, we would rather pay dear for it than one life should be in danger through a polluted supply.

Sir John Gray was much interested in the Main Drainage scheme of this city, and it is to be regretted that his life was not spared until the vexed question was solved, and, at least, some satisfactory progress made with the work. It is as a member of the Corporation of Dublin, and as an advocate of sanitary questions, that the late Sir John Gray comes within the scope of this journal, and as a fellow citizen so engaged we prefer to speak of him. He sat in Parliament as a representative of Kilkenny since 1865; and as a journalist and as a member of Parliament he of course took a leading part in all the political questions bearing upon this country, particularly the Church and Land Acts.

The late Sir John Gray may be said to have commenced his political and journalistic life in this city with the advent of the "Reformed Corporation." He had witnessed many changes in this city during the last thirty-four years, and he could be credited with a ripe experience of the men and manners and ways of his time. The Corporation of Dublin will doubtless pay a tribute to his memory; and it is meet they should, for his loss must be felt by that body.

The remains of the deceased gentleman were conveyed this day from Charleville House, and laid in Glasnevin Cemetery, in the "O'Connell Circle." The programme published by the City Marshal was carried out in its entirety, and the numbers that joined in the melancholy procession well testified to the estimation in which Sir John Gray was held by all parties.

#### THE MAIN DRAINAGE QUESTION.

WE have no hesitation in advising the ratepayers as a body to support the efforts of the Citizens' Committee in protecting the vital interests of this city, which are more or less involved in the Main Drainage question. We are advocates for a Main Drainage Board being formed, and empowered by Act of Parliament, apart from the Corporation of Dublin, to carry out the work required. We are certain it would be better and more economically performed by such a body than by any other method that can at present be devised. The Corporation, as at present constituted, is utterly unfit to be entrusted with the works, seeing how shamefully and recklessly they have squandered time and money over the matter. If the powers of our Municipal Body were used as they should, and in the interest of the city, we would be one of the last to object to their prosecuting the work of Main Drainage; but the powers and privileges of the Town Council of Dublin have not been utilised for the welfare and good government of the city, but for the benefit of individuals; and the very name of municipal rule in Dublin stinks in the nostrils of the people. This is a humiliating confession, yet it is a stubborn truth, and it must be uttered. A grave duty devolves upon the ratepayers, and they will deserve to suffer if they do not unite as a body and support the Citizens' Committee on the serious and important Main Drainage question.

## THE WATER SUPPLY OF THE FUTURE.

SINCE our last issue a deputation of the Social Science Congress waited upon Mr. Selater-Booth with the object of urging upon the Government the desirability of appointing a commission to inquire into the question of the storage of water in the United Kingdom. Amongst the representatives of the association were—Dr. J. S. Phené, Dr. C. Fox, Mr. G. Godwin, Mr. H. Sandwith, Mr. Angel, C.E.; Mr. D. Gatton, Mr. D. J. Fortescue, Mr. Leatham, Dr. Farr, Mr. Bailey Denton, and Sir Eardley-Wilmot.

Dr. Lyon Playfair, M.P., briefly introduced the deputation, observing that the object in view was one growing in importance daily both to town and country. Water fit for drinking purposes was becoming more and more difficult to procure, on account of the extent of its contamination. The memorial which the deputation presented contained the following passage:—"That at the present moment certain communities exist which possess the advantage of having a large supply of water, while there are other communities which are obliged to undergo the inconvenience and hardship of a small supply; and there are numberless villages, also, where no public water supply exists, and where the inhabitants, in time of drought, are obliged to use polluted water for domestic purposes, much to their detriment. That for sanitary and other purposes in many towns and villages an increased supply of pure water is urgently necessary for the preservation of health and prevention of disease; and that to the want of a sufficient quantity of good water, together with the increased pollution of existing sources of supply, are due many of the ailments and no small proportion of the present mortality of the people. That the object of the commission should be to ascertain the extent and character of districts suffering from an absence of supply or an insufficient quantity of water; to investigate the capability of raising water from subterranean sources, or of collecting rain-water on the surface before it is absorbed; the capability of storing water in rivers, and to maintain a more equal flow; the supply of water to villages and small towns where no public supply nor sufficient private supply exists; the encroachment of one watershed upon another; the mode of constructing reservoirs and tanks, and the purification of water generally."

Dr. Michael said among the mining districts there was a complete famine of water, and where it was obtainable they paid as much as twopence a gallon—not, however, without having to wait hours before they were served. In two districts of Wales, with populations of 40,000 to 50,000 persons, the supply was obtained in this way. A thoroughly exhaustive inquiry was absolutely needed, in order to put local and sanitary authorities in a position of ascertaining the best sources for obtaining water and preventing the pollution of rivers. Mr. Bailey Denton observed that he knew of cases where the inhabitants of places had used water twice over, owing to the scarcity of supply. Dr. Farr, Dr. Guy, and Dr. Sandwith followed, shewing the importance of a copious supply of pure water, and the danger attending the use of water as at present supplied in different directions; the latter speaker remarking that in a tank in a club in Pall-mall even human pollution had been found. It was not to be wondered at when it was considered that the greater part of the London water companies drew their supplies from a point in the Thames above which 900,000 persons lived, and threw their refuse into the river. Polluted tank water was killing people by hundreds. The cisterns were seldom cleaned, and got terribly contaminated from all kinds of dirt.

In the course of his reply to the deputation, Mr. Selater-Booth said he had had great pleasure in receiving the deputation, because, as they need hardly doubt, all persons in the Local Government office were greatly impressed with the importance of the

subject that they had brought under his special notice. They had done their best in the legislation of this year to provide some remedy for evils which, as they had justly said, were felt by all classes of the community in the country in a greater or less degree, and he would not fail to bring under the consideration of the Government their desire that an inquiry should take place into the question, although, as he had indicated just before, he thought it rather difficult to decide to what branch of the subject a Royal Commission could best direct its attention within a limited time. During the last session the inconvenience of a short supply of water had been felt in many districts in the country, and the Local Government Board issued orders directing the local authorities to use water carts when no more satisfactory course could be taken, and excellent results had followed from this temporary and occasional assistance. The question of water supply had, he thought, been mixed up a little with two subjects that were not so directly connected with it as might at first sight appear. The question of interfering with the action of the water companies would add very greatly to the extent of an inquiry such as that indicated; for though there was no doubt much to be said against such companies providing one of the necessities of life, those places where water companies were in existence were in many cases better off than those places where there were no such means of obtaining a supply. With regard to the water supply of the metropolis, he reminded the deputation that it had received a careful inquiry at the hands of a Royal Commission some years ago, and it had reported that the Thames and Lea Valleys gave a very good supply to the metropolis, and that it would be sufficient for some years to come to meet the needs of the inhabitants. In conclusion, he could only say that he appreciated the importance of the subject, and would bring their views under the attention of the Government.

Dr. Playfair said the Social Science Association would be happy to draw up a *précis* of the branches of the subject they wished the inquiry to be extended to.

Whatever the commission might have reported some years ago as to the waters of the Thames and Lea, the fact as regards the former river is, as Dr. Sandwith had stated, that a large supply is drawn from the river at a point above which several thousand persons lived. In respect to the river Lea, we can state ourselves, with a knowledge gained by personal examination, that a large amount of pollution, in the shape of sewage matter, passes into the river Lea at different points along its course. If we remember aright, this pollution was pointed out in our contemporary the *Builder* some time since, but it still continues. In this country, which is not studded with such a large number of manufactories as England, the same grave necessity may not exist at the present moment in paying a prompt attention to the sources of our water supply. Nevertheless, the sooner attention is paid to the matter the better. There are several of our rivers and their tributaries polluted with the waste refuse of manufactures of different kinds, and the time is opportune for enacting a law more strictly bearing upon the pollution of our rivers than is now in force through the medium of any of our sanitary acts. The subject of the pollution of rivers in England is a difficult one, that country for years being a great manufacturing one, and almost every county having a number of various kinds of manufactories, the foul refuse of which, in liquid and solid, has been for long years permitted to pass into the rivers from which different towns and cities obtain their supply for drinking and other domestic purposes.

Science and law, which have already provided for and partly put a stop to the smoke nuisance, can surely do the same thing in respect to sewage and other nuisances, by making them be utilised and rendered harmless by chemical means. The sanitary condition of the three kingdoms will never be in a

satisfactory or really improving state until the pollution of rivers is stopped at every point, and the surface of the three countries mapped out into drainage areas, and defined sources of water supply.

## AIR AND VENTILATION.\*

(Concluded from page 97.)

Now, the next part of the subject, the ventilation of a house by means of the passage of air through the walls, can be shown in an exaggerated form by the passage of hydrogen through a porous material. This is not to be considered by any means what takes place in a house, that is to say, we have not the passage of hydrogen, but we have a passage of cold air through the walls of a room into the house, and this experiment is made with hydrogen simply, because it is more easily shown to you than by any other means. Here is a porous vessel which may be taken roughly to represent the wall of a house, and if I bring this jar of hydrogen gas over the porous vessel, you will notice the passage of the gas through the porous vessel causes a pressure into this vessel, which ejects a stream of liquid. It has been proved, by experiment, by Pettenkofer, of Munich, that the passage of air through the wall of a house is very considerable. He examined the walls of an ordinary room in his own house, and found the change of air through the brick walls in a room, the cubic contents of which were 2,650 ft., when the difference between outside and inside amounted to 84° F., amounted to this:—

	Cubic feet.
With a fire .. .. .	2,650
All crevices stopped .. ..	3,320
With a difference of 7° Fah. ..	1,060
Window open 8 ft. square ..	780
	1,060

This illustrates what takes place in winter, when one's repugnance to cold air causes one to shut the door and windows and have a roaring fire. The air which cannot get in by crevices or by doors makes its way through the walls, that is to say, the doors and windows being shut, a certain increased amount of air passes through the wall into the room. What is the advantage of this? It is this, that we are supplied then with fresh air free from draft. Ventilation is not supplying fresh air, but supplying it free from draft, and this natural source of ventilation gives us really true ventilation. The amount of carbonic acid in the air may be taken on an average as about 4 parts in 10,000, and in order to keep the air fresh we should not allow the pollution of the air to extend to a greater quantity than 2 parts in 10,000 over this. Therefore the extreme of carbonic acid in the air is 6 parts in 10,000. When the amount is more than this, the air begins to be close, that is to say, we begin to feel by the nose that there is a certain pollution in the air which you cannot exactly account for. Six volumes in 10,000 is the amount of carbonic acid which is allowable, and all above this must be considered unwholesome vitiation of the atmosphere. Then in close places, that is to say, in places which contain more than 6 volumes in 10,000, of which there are many—workshops, offices, public buildings, theatres, all contain, generally speaking, much more than this—we have an atmosphere which can be known as unwholesome simply by the nose. The nose tells us there is something in the air which ought not to be there. What is the reason of this? It is not carbonic acid, because we cannot detect carbonic acid by the nose. It is a certain amount of organic matter thrown off from the lungs, and generally speaking from the body in some form or other, and this organic matter rises in proportion directly with the carbonic acid. Therefore, if we measure the amount of carbonic acid in the air we measure the amount of pollution by organic matter, and by determining the carbonic acid in the air, which we can do very accurately by chemical analysis, we also

\* By Mr. W. N. Hartley, F.C.S. Read at meeting of Society of Arts, February 19th.



determine the amount of organic matter which vitiates the air. We do not know the organic matter, but we know there is more than there should be. In buildings in which the natural ventilation is not allowed free play, and in which no extensive mechanical appliances are used to contribute fresh air, this vitiation of the atmosphere goes on to a very great extent. For a few examples of this we have the analyses made by Dr. Angus Smith, and we find by this table that in workshops he has found the air so bad that it rose as high as 80 parts in 10,000; that is to say, the carbonic acid was very nearly ten times as much as it should have been. In theatres he found it rose to 82 volumes in 10,000 of air, in mines 78·5, an enormous quantity, and the largest amount he ever found was 250 in 10,000. Here is a table giving an analyses of air in different places, made by Dr. Angus Smith. In a Chancery Court, seven ft. from the ground, with the doors closed, he found the proportion was 19·35 carbonic acid to 10,000; in the same court, three ft. from the floor, 20·8; in the same building with the doors open, that is to say, when the fresh air had entered, it was 5·07 and 4·5. Then in the Strand Theatre, in the gallery it was 10·1, in the boxes 11·1; in the Surrey Theatre at 12 p.m., 21·8; in the Olympic, 8·17; in the Olympic in the boxes 10·14; in the Haymarket 7·5, and so on. In hospitals, where great care is taken to have large free space in the room for each patient, and a supply of fresh air regularly admitted, the amount does not rise above that of the outside air. In the Queen's Ward of St. Thomas's Hospital no more than in the outside air; in the Edward's Ward of the same hospital it was 5·2. These tables show the large vitiation of air taken in crowded buildings, and in the case of the law courts it was almost as bad as any. There was another case, in the Queen's Bench, in which the air is described by Dr. Angus Smith as the foulest air that he ever found above ground. It seems that law courts were always famous for being filled with foul air. In 1796, Brahmah, the inventor of the patent locks, who was giving evidence in a Chancery suit connected with one of James Watt's patents, complained that he could not give his evidence because he was "much incapacitated by those alkaliescent and morbid exhalations ever consequent on large and close assemblies," no doubt the carbonic acid and the organic matter; and he complained that the judge's attention had "become flaccid through fatigue." This is really because of the small amount of air which is allowed to each person in the building—that is to say, the small cubic space which is available for each person's use—and, furthermore, that the amount of wall space is very small compared with the production of carbonic acid in the interior of the building. In summer, when the difference between the temperature of the inside and outside of a building is small, it is quite possible in a crowded room like a ball-room for the air to be more vitiated than in winter. Therefore, in theatres in summer we may look for a greater vitiation of the atmosphere than in winter, when the difference between outside and inside temperature is much greater. Acting upon this, last year I made some experiments at the two Italian Operas, Covent-garden and Drury-lane, and from several experiments made in each case, I found the following numbers:—April 28th, Covent-garden amphitheatre, amount, 22·5 in 10,000 of air, near what is called a ventilator, although the air which was admitted was not pure, it was 17·6, and near an open door it was 14·8. The people in the building were listless and gaping, and evidently wanting in attention somewhat, and did not seem to be lively and animated, and they exclaimed how delightful was the fresh air coming in from an open door, yet this fresh air contained 4·8 volumes of carbonic acid in 10,000. In Drury-lane the average of three analyses was 25·9. You must not think that because these were taken in the upper part of the house that

down below there was any great difference. In a private box, for instance, the space is so enclosed that the air very often there is worse than in the gallery, especially at the back of the box. In the stalls of Covent Garden, between the acts, when the curtain is down, the air is then very hot and very impure. I have not made an analysis of that, but one can feel it when the curtain is down; the supply of fresh air is practically cut off, because the supply of fresh air comes from behind the scenes, all other entrances being carefully closed by swing doors, and there being a great want of openings to supply fresh air from the outside. There is no doubt the large amount of gas burnt in a theatre, if ventilation had free play, would considerably facilitate the entrance of pure air. We have heard great complaints about public offices, more especially the British Museum; and last summer I made some experiments on the air of an office of which great complaints had been made, namely in the money-order office in Aldersgate-street. In one room where there were a large number of clerks, a tolerably high room, with large windows, the proportion was 22·2 and something over, in fact it reached up to 25, this being the average of two or three analyses. This is as bad as a theatre. In the same office, on another occasion, without the gas lighted, it was 17·6. In the same office, with the windows open, there were 4·2 volumes, that is to say it was practically the outside air. This gives you a tolerable notion of the amount of carbonic acid, and consequently the amount of pollution in the air in various buildings.

Now, with regard to the amount of fresh air which is necessary for each person. This is far more considerable than you would imagine. The amount of carbonic acid given off by an average size man in an hour, from the lungs and skin, is about 7·10ths of a cubic foot, and if we take it as 6·10ths we shall be below the quantity. A good oil lamp, or a couple of good candles, will also give 6·10ths of a cubic foot. Therefore a man in a room with a lamp or two candles, gives 1¼th of a cubic foot in an hour. Now I have told you before that the amount of allowable pollution in the air was 6 volumes in 10,000; beyond that the atmosphere becomes unwholesome. Therefore, in order to keep the air fresh with two men in a room, or one with a lamp or two lighted candles, would have to require this amount of carbonic acid produced with 5,000 volumes of air. He would therefore require 6,000 cubic feet of fresh air, and one man therefore, in occupying a bedroom for instance, would require 3,000 cubic feet for his own use. This is pure calculation. What does the experiment show? In some experiments made in Paris to determine the amount of fresh air which should be supplied to hospitals it was found, by pure experiment, not by calculation at all, that this should be from 3,120 to 2,470 cubic feet in an hour.

	Cubic Feet.
Hospitals	2,120
for wounded	3,530
for epidemics	5,800
Workshops	2,120
for unhealthy trades	3,530
Barracks, day	1,060
night	12,410 .. 1,765
Large rooms for long meetings	2,120
short	1,060
Schools for children	424 .. 530
for adults	840 .. 1,060

Now, in order to get this 3,000 cubic feet of air in an hour to an audience in any public building, it is absolutely necessary, as far as I know at present, to resort to some special means of supplying fresh air, and a very good instance of this is afforded at the Royal Institution. Very great care was taken there, four or five years ago, by arranging with upright cylinders going to the roof from under the gallery, in which gas-jets were burnt, and passages connected with windows which entered underneath the seats and above the heads of the audience underneath the gallery, to admit fresh air; but, nevertheless, on a night when there is a large audience at the Royal Institution the air is undoubtedly bad. It is not so much, per-

haps, the contamination by the breath as by the gas and heat—it feels extremely hot. To estimate whether the place is close or the air is polluted by breath, it is necessary to enter from the outside directly. That I have not done. I have gone in at the commencement when the audience was arriving, and remained there to the end. Still, there is no doubt people complain continually about the air in the upper part of the building being extremely bad. There is no doubt that the Royal Institution, from the very fact that such care was taken in the ventilation, is far better than other buildings of the same kind, but it shows that, in order to supply fresh air to a building crowded in that way, some mechanical means must be resorted to. Such mechanical means are, so far as I know, a rotating fan, which drives air forward through pipes and distributes it to the building, and such a rotating fan is applied in America to the ventilation of hospitals on a large scale. In summer, when the air is hot, it is passed through ice to cool it; and when in winter it is cold, it is passed over hot-water pipes to warm it; and so a regular supply of fresh air is driven into the building, and allowed to find its way out where it can. In the Stamp-office at Somerset-house, which is below the level of the ground, this means is resorted to, and I imagine, in consequence of their having such a contrivance, that the air was in such a place wholesome. In this country it is not advisable to change the air of a room more than 4 to 6 times in the course of an hour. It is therefore necessary, generally speaking, to have a sufficient supply of fresh air to begin with, in order to prevent the air being changed too rapidly, and it has been calculated, as stated by Dr. Parkes in his book on "Practical Hygiene," that from 750 to 1,000 cubic feet per head per hour is necessary. In a crowded building where mechanical ventilation could be resorted to, the air could be so warmed as to produce no feeling of draught. I may as well mention what this feeling of draught is, and why it is that diffusion through the walls is unfelt. When the air travels at a lower rate than nineteen inches per second, generally speaking, that is to say, if it is not very cold, it is unfelt. There are around us continued currents of air pouring upwards by the heat of the body, causing the air surrounding us to become warm and rise up with fresh air coming against us; still these currents we are unconscious of. It is only by an extremely delicate instrument placed under your top-coat that these currents can be detected. Then on a day when not a leaf is stirring, not a ripple on the water, there are constantly currents playing about; these are unfelt, and are produced at a rate of something less than nineteen inches per second. That this rate is unfelt may be proved by passing the hand through the air at a speed somewhat less; and of course passing the hand through the air is just the same as passing the air over the hand if it were stationary.

Ventilation then may be considered, generally speaking, as the passage of fresh air to an apartment at a rate of less than nineteen inches per second, so as to reduce the carbonic acid in the air to 6 volumes in 10,000. Dr. Angus Smith, who has done such valuable work in the matter of air and ventilation, gives us a means whereby we can estimate whether the air of a room is wholesome or not, whether the vitiation is increased to an extent which is unwholesome, and that is a very simple test. It consists in taking a bottle, which holds 10½ oz. of air when the stopper is placed in the bottle. If I blow the air into this with the bellows, and then take ½ oz. of saturated lime-water, the test consists of this, that if there is more carbonic acid in the air of that bottle than 6 in 10,000, shaking up this ½ oz. of lime-water in it will cause the lime-water to become turbid. Trying the experiment with the air of this room, it becomes just turbid, and that is all. I should not think from this experiment that there were more than 6 volumes in 10,000. It just shows the slightest trace of turbidity, and that is all. By taking a smaller bottle

and the same amount of lime-water, the amount of carbonic acid in the air may be told to the extent of 1 volume in 10,000, and by means of a flexible bottle and the lime-water contained in another apparatus, we may determine the amount with some degree of accuracy.

I will pass over the determination of the carbonic acid in the air, and I will go to another matter, a very important one, which is the carbonic acid in the soil. Pettenkofer has shown that if we take a gravelly soil, cut a piece out, and measure the amount of water that we can pour into it, the amount of water it will take up will amount to one-third the space occupied by the soil. Therefore, the soil consists of one-third of air. Now Boussingault has shown that the amount of carbonic acid in the air contained in the soil was very much more than that contained in the air of the atmosphere. He found that in a field recently manured it amounted to 221 parts in 10,000 of air, and in another field 974, and in a field of carrots 98, a vineyard 96, forest land 86, loamy subsoil 82, sandy subsoil 24, garden soil 36, prairie 179. You see then that what may be called the ground-air is highly charged with carbonic acid. When we warm a house by a fire it creates an upward draught, and undoubtedly the air from the soil passes into the house. If you doubt this, a very good case to prove it is the one Pettenkofer mentions at Munich of a house in which there was no gas laid on or any gas pipe within twenty yards of the house, yet the people in the house were poisoned by an escape of gas. This escape from the main travelled through the earth and gained admission to the house. Nearer home there has occurred a case of a still more striking character at Southgate, Colney Hatch, where one or two small houses were completely wrecked in November last by an explosion of gas. This gas was not laid on to the houses at all, the main passed through the street, the houses stood back from the street some distance; the main was cracked, the gas travelled through the soil, gained admission to the house, it smelt for several days, and finally exploded one evening on a lamp being lighted, and completely wrecked the building. Here, then, is striking evidence of gas passing through the soil. What does this teach? It teaches that the air of the soil should be as far as possible prevented from being polluted. If the soil is polluted by a leaky drain pipe we have that communicated to the soil which, if it gains admission to the house, may lead to disastrous results, the breaking out of typhoid fever, and those other diseases which are always traceable to contaminated air and water, which are familiar to every one. It is therefore highly important that this matter should have attention called to it. It is not at all an unusual thing in the neighbourhood of London for speculating builders to build houses and make drain-pipes which have no outlet; they put drain-pipes below the house, which lead nowhere; the consequence is, that after the house is let the unfortunate tenant is perfectly ignorant of the fact that everything which escapes by the drain-pipes is lodged in the earth. Of course, after a time, this cannot fail to be found out, but frequently only when it is too late.

Having mentioned this matter, I think I must now conclude my paper, and I hope sincerely that I may succeed in drawing attention to these matters which are undoubtedly of the highest importance. In preparing my experiments, I have to give my best thanks to my friend Mr. Thomson, who undertook the trouble for me this afternoon, otherwise I do not think I could have performed them.

#### THE GREAT SEWAGE QUESTION.

THE well-known Mr. J. J. Mechi has published a very important letter recently on this subject in many of its relations, but more particularly in regard to the future food of our people. He says:—Unlike the

Chinese, we have never been taught to appreciate human voidances as the means of producing our food. As a nation we don't understand, and, therefore, do not believe in it, but if we once lost the command of the seas, the starvation of one-third of our population would teach us a stern lesson. Increase of population, like increase of sheep or cattle, should bring with it increased food. It is so in China, where the enormous population, more than 800,000,000, are fed without any foreign imports. There every individual is taught, from earliest youth, not to waste the means for producing food. Even the barber's lather and its contents have a value, and are utilised in food growing. In this matter the Chinese may truly call us "outside barbarians." If the contents of our sewers, which now poison our rivers, flowed on to a portion of our 28,000,000 of acres of permanent pasture, which, now, for want of manure, produce so little meat, there would be much less complaint about butchers' bills. This is no longer a theoretic question, for it has been practically proved in several districts for many years.

#### THE GAS MANAGEMENT IN DUBLIN.

THE report submitted at the last half-yearly meeting of the Alliance and Dublin Consumers' Gas Company shows satisfactory results, at least so far as the interests of the company are concerned. They were able to afford a dividend to their shareholders, and we have no objection to see men who have honestly invested their money receiving a legitimate return. Neither have we any objection to offer against Mr. Cotton, the manager and secretary, receiving a special vote of thanks for the able manner in which he has discharged his duties to his employers, the company. We should like, however, to see more explicit and fuller information afforded to the consumers in regard to the exorbitant bills they have been furnished with, and also we should like to see a more uniform supply of gas. The standard was reduced from 20 to 16-candle gas, and ever since the reduction, on divers occasions the consumers did not receive anything like the illumination they have been charged for. We are glad to find that the leakage has been considerably reduced, and, accepting the report of the company and the statement of one of the directors that "the company were now earning an honest dividend," we could wish that this honesty was shared with the consumers.

We do not wish to be too captious or exacting, but it cannot be denied that in connection with the gas supply of this city there is a great deal that needs reform. We have spoken our minds upon the subject more than once, and reliable correspondents, whose statements appeared in these pages, have more than once challenged the company to dispute their figures. These statements, showing the wrong-doings of the company to the great injury of the consumers, still remain unanswered. A certain connection that exists between the Corporation of this city and the Gas Company does not look well, and will always give rise to a suspicion that justice is not done as between the public and the public bodies concerned. All public transactions should be, in their management, placed above suspicion. One of the directors said that the Gas Company "were well watched by the Corporate officers, by the Government Inspector, and the Government Auditor." Indeed, the less, perhaps, that is said about the Corporation check the better, and as for the check exercised by the public, it is, for the want of united action, almost nil, although if the consumers, as citizens, stood up for their rights manfully they have certain Acts of Parliament in force that would vindicate their action. When there were two Gas Companies in Dublin there existed a check that was used by the public more than once with effect, but with the amalgamation came a monopoly, bad

management, worse gas, and extortionate charges. With the improved financial prospects of the Gas Company, with the shareholders pacified and benefited, and the directors secured their usual pickings, the turn has come for the consumers to assert their rights once more, and maintain them.

#### QUEEN'S COUNTY NOTES.

##### THE SURVEYOR'S REPORT.

FROM the report of Mr. H. U. Townsend, County Surveyor for Queen's County, we take the following passages:—

"The courthouse committee appointed by the last grand jury met on the 9th September, and under their instructions professional architects were invited by advertisement to furnish designs for competition. A statement was published and forwarded to applicants. Two designs only were received, of which that by Mr. Rawson Carroll was by the committee recommended to the Road Sessions, at which the justices and cesspayers passed an application for a sum of £2,000, to be repaid with interest by half-yearly instalments. The architect was instructed to complete his plans, &c. (for contract), introducing some alterations suggested by the cesspayers and others, and it was ordered that tenders be opened by the grand jury.

"The heating of the courthouses at Abbeyleix, Borris-In-Ossory, and Mountmellick has been so delayed by the contractor that no benefit has been derived this winter.

"The application of the sanitary laws, as connected with the road department, demands the serious attention of the grand jury. It is essential that the line be drawn between the works legalized under the grand jury laws for the discharge across the roads of the natural or 'storm waters,' and those required for the discharge of sewage—a distinction necessary, not only to prevent a conflict of authority and of the executives of the two departments, but also to protect the interests of the cesspayers, whose liability to pay the whole cost of works under the grand jury law is under the sanitary law limited to one-half. Already a question has come before a court of petty sessions involving a conflict of authority, and I would ask for your order enabling me to call in the assistance of your solicitor when necessary, as in the case referred to, for the protection of the public ways from injury and nuisance."

##### ALTERATIONS AT THE COUNTY COURTHOUSE.

On the assembling of the grand jury, Sir Allen Walsh said that at the last assizes a committee was appointed to see what alterations were necessary in the county courthouse. That committee fixed on the alterations, and advertised for an architect to prepare plans. Plans have been prepared, and a presentment passed at road sessions for £2,000. Tenders are to be opened at this assizes, and perhaps it would be a more satisfactory arrangement to have a permanent body, having full power to overlook the alterations. He would, therefore, propose that the following be the committee to choose tenders, to control and carry out the alterations—Mr. Cosby, Mr. Hamilton Stubber, Mr. Kemmis, Mr. Moore, and Colonel Carden.

Mr. Scott seconded the proposal, which, he said, he highly approved of.

The proposal was carried unanimously.

Colonel Carden proposed that the remuneration of £50 agreed on at the last assizes be now presented to the architect.

Sir Allen Walsh seconded the proposal, which was passed unanimously.

The above-named committee having opened the tenders sent in, reported as follows:—"We, the committee appointed for the courthouse alterations, beg to report to this grand jury that we recommend the tender of Messrs. Beckett, of 28 King-street, South, Dublin, for the sum of £1,880 be accepted, and in addition a sum of £90 be given to Mr. Carroll, the architect, to cover all his fees and expenses connected with the carrying out of this contract. And we recommend that our solicitor be requested to have a bond drawn out and completed for the due fulfilment of this contract. The works to be finished by 1st December, 1875."

The grand jury approved of the report, which was then passed.

### THE ALTERATIONS AT MARYBOROUGH COURT-HOUSE.

OUR provincial contemporary, the *Leinster Express*, in relation to the above, says:—

When the Queen's County Grand Jury sanctioned the improvement of Maryborough Court House in order to meet the wishes of the judges of assize, we are certain they never contemplated the public would suffer great inconvenience, and that the records of the county would be exposed to considerable danger during the alterations. If they had they would no doubt have inserted provisions in the contract which would have prevented the annoyance to which the public and county officials have been subjected. Those whose business has brought them to the Maryborough Quarter Sessions have been well nigh smothered with lime and dust, which is wafted into the court from an adjoining apartment which is being demolished. The Chairman, it appears, remonstrated with the overseer, but in vain. We understand the contractor commenced pulling down one of the county offices without having given any intimation which would have afforded the officer who occupied it time to remove his books and documents to a place of safety.

The contractor, his overseer, and workmen, engaged in the above alterations appear to be very go-a-head sort of fellows, not caring for judges or grand jurors, and no way inclined to let the job stand still for a moment. In London, recently, a judge threatened to commit a carpenter for contempt of court, who refused to stop his hammering on the outside of the roof of the building within which his lordship sat. It was very hard upon the carpenter, particularly if he was employed upon a piece or by the job. From the report of the proceedings at the Quarter Sessions at Maryborough, we learn that, "The professional gentlemen engaged in court complained of the inconvenience of the dust arising from the alterations being made in the building. 'His Worship—What can I do? I implored of the man over the works not to pull down the room inside, and he said he did not care if all the judges in Ireland were here he would go on with the work. (Laughter). I told him I would send him to gaol; he said he did not care, the workmen would pull down the walls all the same.'"

### THE LIFFEY NUISANCE.

At a meeting of the Corporation some days since, the Lord Mayor said he had brought under the notice of the Port and Docks Board the subject of cleansing the Liffey in a temporary way, and he was very happy to report that the suggestions he made were met by the board in the most friendly and cordial manner. They not only stated that they would give every assistance in their power, but that they would place whatever plant they possessed at the disposal of the Corporation, and it was agreed that Mr. Stoney should confer with the City Engineer. In a few weeks midsummer would have arrived, and all the annoyance caused by the effluvia from the river would be again at its height. Steps should, therefore, be taken at once. He had a report from the City Engineer, which was as follows:—

Engineer's Office, Dublin, April 3, 1875.

MR. LORD,—In compliance with your directions I have had an interview with Mr. Stoney, engineer to the Port and Docks Board, on the subject of cleansing the foreshores of the River Liffey, between Carlisle Bridge and Victoria Bridge, before the warm weather sets in. We are of opinion that the only thing that can be done is to have the foreshore swept as heretofore, and the soft sludge to be deposited in a barge, which, as filled, can be poled down the river and the contents deposited where Mr. Stoney will direct. The Port and Docks Board will, I believe, lend one of their barges for the purpose, but all the cost of labour of working it, as well as sweeping of the foreshores, will have to be paid (as I understand) by the Corporation. We think that an expenditure of from £15 to £20 per week for, say four or five weeks, will do all that can be done.—I have the honour to be, my Lord, your obedient servant,

PARKS NEVILLE.

A long discussion, as usual, ensued on the head of this temporary measure, opportunity being taken to raise legal questions as to

rights and duties as between the Port and Docks Board and the Corporation. Nothing, it seems, can be done in the Town Council of Dublin without obtaining a lawyer's opinion. Some wide-awake gentlemen at Cork-hill know very well how to serve their own and the public interest, but which they prefer to serve first the reader may judge.

After much wrangling, the following amendment was carried—"That the Port and Docks Board be invited to join the Corporation in stating a case for the opinion of counsel on the question whether the Port and Docks Board or the Corporation are bound to cleanse the Liffey, both parties binding themselves to abide by the decision." It was adopted without a division.

We may add, however, that the measures to be taken for the abatement of the nuisance, as mentioned in Mr. Neville's letter, will be of very little use. There is work for several barges, and the sweeping of the foreshores as formerly, by which the soft sludge is passed into the middle of the river, will be labour thrown away, as the returning tide will force the greater part of it back again on the foreshores. Of course, the condition of the river, with many foul sewers pouring their filth hourly into it, is a strong argument for the expediting of the Main Drainage scheme. Certainly it is; but there are schemes and schemes, and Dublin needs a more practical and a less costly one than that which several interested folk are endeavouring to force upon the city.

### THE NEW CATHOLIC CHURCH OF ST. THOMAS OF CANTERBURY.

On Tuesday last this church was opened by Cardinal Manning. It is in the Early Decorated style. The interior is roofed with pitch pine. There are two side chapels, one on the east dedicated to the Blessed Virgin Mary, and the other on the west to St. Joseph. There is also a chantry chapel, two confessionals, with sacristies, a baptistry, and an organ loft. The last is placed over the end of the nave. The traceries of the windows are mainly geometrical, and the filling-in is with diamond-shaped panes of colourless glass. The corbels and bosses are left in a square, rough-hewn state, as well as many other decorative details, until funds are contributed hereafter for their completion. The edifice is erected from the designs of Mr. John Green Hall, a local architect, and will doubtless be subject to continued enlargement and embellishment to meet the wants of the Catholic community in the town. The number of Roman Catholics at present in Canterbury is not large. It is stated that the church will cost £6,000, which is considerably over the estimate, and that £1,000 was expended upon the foundation, which proved to be a troublesome one. The erection and opening of this church has been looked upon as an important event by the English Catholics, and it has been inaugurated with great ceremony.

### NEW TEMPERANCE HALL, TOWNSEND-STREET.

THE promoters of the temperance cause in this city may well be congratulated for the exertions they are making for the benefit of their fellows. The new hall, which has been in course of erection for some months, will, in a week or two, be ready for opening. "It promises," say the projectors, "to be all that the friends of the undertaking can desire—attractive, suitable, convenient, and an architectural ornament to the city." A detailed description of the hall and premises must be held over. We understand that aid is solicited. Mr. George Tyrrell is the contractor.

### TENDERS.

For Enniskerry Glebe-house. Thomas Drew, R.H.A., architect:—

	House.	Office.	Tank.
Brodigan	£1,420	£500	£50
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### THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

MR. William Fogerty, F.R.I.B.A., will read a paper at the ordinary general meeting of the Institute this evening, on "The Condition and Prospects of Architecture in the United States." The paper will be illustrated by drawings and photographs of American buildings. We hope to give the paper in our next issue.

ROYAL DUBLIN SOCIETY.—The sixth scientific meeting of session will be held on Tuesday evening next, when a paper will be read by Mr. Thomas Grubb, F.R.S., on "The uneconomical state, both as regards the supply and burning, of gas for lighting purposes in our dwellings, and the means of improvement therein." The paper will be illustrated by apparatus.

MULLINGAR COURT-HOUSE.—At the recent assizes for the County Westmeath, Mr. Justice Fitzgerald, in his address to the grand jury, said he had some observations to make to them with reference to the court-house in which they were assembled for the administration of justice. It was far worse than any other court-house in the country, and he did not see that anything could be more inconvenient than its arrangement. In fact, there appeared to have been the most malicious ingenuity exercised by the person who designed it to make it inconvenient! In getting to the jury-box a jurymen had first to struggle up a spiral staircase, and afterwards fight his way through a crowd, so that the inconvenience was very great. He asked the grand jury (pointing to the dock) to look at that menagerie in the centre of the court. It was a place in which wild beasts might be kept, but it was utterly unfit for human beings. The dirt and damp, too, were disgraceful. The discreditable part of the whole thing was that in this wealthy and prosperous county there was no provision made for ventilation, for heating, or for lighting. The building was fine enough, but it was not properly lighted or arranged. He was sure he had only to call the attention of the grand jury to the condition of the court-house and they would consider the matter.

### TO CORRESPONDENTS.

CISTERCIAN ARCHITECTURE.—We publish in our present issue the first portion of a very interesting paper on "The Architectural Remains of the Cistercians in the County Down," by Mr. James J. Phillips, of Belfast, whose beautiful monograph of Gray Abbey was recently noticed in these pages.

SANTAS.—The Act will be extended to this country. J. B.—Your MS. to hand, but too late for insertion in this issue. A few phrases might be eliminated, we think, without impairing the pungency of the paragraphs.

"A LADY."—A work recently published, entitled "The Choice of a Dwelling," by Gervase Wheeler; is an excellent handbook for your purpose. It can be had to order through any of the booksellers, or direct from the publisher, John Murray, Albemarle-street, London.

OORGLA (Galway).—Vallancey, the antiquary, died about the year 1812. See the magazine literature of that year, if within your reach.

A SUBSCRIBER.—We know nothing about "The General Expenditure Assurance Company, Limited," and all the advice we can tender you is in the words of the old adage—"Look before you leap."

A MEMBER OF THE BELFAST A. A.—Thanks, but our attention was already drawn to the fact. The act is in keeping with others in this city.

Several matters are unavoidably held over, including correspondence, notices of books, &c.

EPPE'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Eppe has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame"—*Civil Service Gazette*.

*It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.*

*Correspondents should send their names and addresses, not necessarily for publication.*

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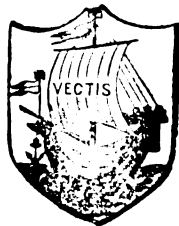
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# The Irish Builder.

VOL. XVII.—No. 369.

*The Literature of Gothic Architecture  
in Ireland.\**



ALTHOUGH the theories respecting the origin of the Round Towers may be classified under seven or more heads, yet they may be reduced or ranged into two distinct theories of Pagan and Chris-

tian origin. In our own day all readers or students, or others, who have given any attention to the subject, are aware that the late George Petrie, an able and conscientious native antiquary, has been the greatest propounder and supporter of the Christian origin and uses of these somewhat mysterious buildings.

From the time of Giraldus Cambrensis, towards the close of the twelfth century, until the present, they have formed the theme of historians and antiquaries, many following in the wake of others who preceded them, for no more valid reason than that the first conjectures of the origin or uses of these towers were taken as facts, or that the succeeding writers had neither the ability nor the inclination to examine or propound a theory of their own. It is curious to observe with what fidelity a number of our native historians follow each other through the gaps, like a parcel of sheep, not caring much into what field their wanderings may lead them. It may be said that until the present century, the Round Tower Controversy was entirely an antiquarian one, and architectural writers seldom venturing to express an opinion at variance with the accepted theories. Historians, archaeologists, artists, and the *dilettanti*, during the latter half of the eighteenth century, amused themselves to their hearts' content in viewing the pillar towers of Ireland; but not one of them, as far as we are aware, has added much to our stock of ancient architectural knowledge. It was reserved for the writers of our own time, some artists but possessing respectable architectural knowledge, and others architects resolving to be first to lead the way to a more satisfactory elucidation of the vexed problem. It is not our intention to put our opinions in any obtrusive way against the conscientious propounders of either the Pagan or Christian theory, but merely to place the opinions, old and new, once more before the public, so that in the light of increased knowledge they may stand or fall in being judged upon their merits; firstly, it is stated that the Phœnicians erected them for fire temples; secondly, that the Christians built them for bell-towers; thirdly, that the Magians used them for astronomical purposes; fourthly, that they were for Christian anchorites to shut themselves up in; fifthly, that they were penitentiaries; sixthly, that the Druids used them to proclaim their festivals; seventhly, that the Christians used

them to keep their church plate and treasures. Modifications and variations of the above theories have also been advanced, but the above, probably, is sufficiently exhaustive of the heads which the different theories may be ranged under for consideration.

Let us now go back to Giraldus Cambrensis, who has been cited by several as an authority, and particularly by Ledwich, in the last century, who was made upon his Danish theory. Cambrensis, however, affords us very little information in his "*Topographia*" about them, save that they were *turres ecclesiasticas*, or ecclesiastical towers, in a style peculiar to the country, and that they were "narrow, high, and round." John Lynch, the severe critic of Cambrensis, was certainly a good scholar, and he plays havoc with many of Cambrensis's statements; yet, on the particular matter in question, he affords us but little information. Ledwich quotes him because he thinks he agrees with his Danish notion, but we fail to see what strength is in Lynch's remarks to the effect—"the Danes who entered Ireland, according to Giraldus, in 838, are reported to be the authors of our orbicular narrow towers. They were called *clochtheachs*, that is, the house of the bell." Mind you, "reported to be the authors." Without wishing to disparage the learning of John Lynch, the author of "*Cambrensis Eversus*," it is plain that Ledwich was ready to magnify a molehill into a mountain to serve his purpose. Peter Walsh, a learned Franciscan, in his "*Prospect of the State of Ireland*," expresses opinions favourable to Ledwich's theory, and is, of course, quoted. He says:—"That it is most certain those high, round, narrow towers of stone, built cylinder-wise, were never known or built in Ireland (as indeed no more were any castles, houses, or even churches of stone, at least in the north of Ireland) before the year of Christ, 838, when the heathen Danes, possessing a great part of the country, built them in several places, to serve themselves as watch towers against the natives. Though ere long, the Danes being expelled, the Christian Irish turned them to other and much better (because holy) use, that is, to steeple-houses or belfries. From which latter use made of them it is, that ever since, to the present day, they are called in Irish '*Clochtheachs*,' that is, belfries, or bell houses, '*cloc*' or '*clog*,' signifying a bell, and '*theach*' a house, in that language." With the mass of information our Irish annals, translated and published in the present century, bring before us, we may well smile at the assertion that the native Irish erected no buildings or houses in stone before 838.

Dr. Molyneux writes at some length on our indebtedness to the Danes, as the first introducers of coin as well as trade, the founders of our chief towns and cities; and the doctor even asserts that we are indebted to these great ravagers and despoilers of everything for the introduction of the art of masonry, or building with lime and mortar. At this date of the world it will hardly be necessary to explode this idea, which has long since been exploded. The countless architectural remains of this country, whose age is written in each course or block of stone that forms them, incontestibly prove that good masonry and building construction was practised in this island centuries before the Danes set their foot upon the soil. And

though some of our early structures were built without the use of lime, there cannot be the least reasonable doubt that the use of lime cement was known in Ireland and other parts of Britain long before the introduction of Christianity.

The early Irish had frequent intercourse with Rome, France, and Spain, and her ports and harbours were well known, as Tacitus and other early historians have shown us. Molyneux believes our towers were built for belfries or steeples, and, as we have seen, ascribes their erection to the Ostmen or Danes. That some of these were afterwards used for the purpose described there can be little doubt, though there are few at the present day will admit that they were erected originally by the Danes, and that we had no coin, trade, mechanical arts, or masonry previous to the great Northern invasion in the eighth and ninth centuries. These opinions are worthy of the fostering approval of Ledwich, who created saints and deposed them as suited his purpose, and cavalierly relegated St. Patrick to the limbo of myths and figments. Harris, in the last century, and Bell, and other later writers, to whom we will allude hereafter, point out the fact that there are no vestiges of Round Towers in Denmark or in England, where the Danes were long naturalised; and speaking anent this Danish claim, Mr. Bell observes, in his essay on Gothic Architecture:—"From the general diffusion of these Round Towers through almost every county in Ireland, another negative argument is furnished against their Danish origin, for I believe the sway of those intruders was never so universal through the country as it must have been if they could, unmolested, have raised so many monuments of their dominion over the native Irish. . . . While the Danish power was most general and oppressive through the land, these intruders were yet Pagans. A principal object of their predatory warfare was the demolition of the Christian churches, and by the time they converted and had embraced the established faith of the country their power was certainly curtailed, except in a few maritime districts."

After settling the question of the origin of the Round Towers to his own satisfaction, Ledwich thinks the only difficulty remaining was to satisfactorily account for their shape, and, after a show of argument, and quoting Molyneux, concludes that the round figure "was adopted from the Continent, between which and Ireland a constant intercourse was maintained, particularly in that age." Before concluding this he had to account for the Ostmen, or Danes, using belfries, or otherwise it might be said that Pagans needed no bells, but the doctor was equal to the occasion by saying—"A people just emerging from idolatry eagerly embraced a corrupt religion [we are to recollect there was no St. Patrick, and if the Danes or native Irish became Christians they became corrupt ones] so congenial in many parts to that they formerly professed, and hence the Ostmen did not esteem themselves Christians without bells and belfries. Protected by these, and the reliques of saints in their crypts, they defied the powers of visible and invisible enemies."

The late Mr. D'Alton, the antiquary and historian, has been allowed to be one of the most moderate and judicious advocates of the Pagan origin of our towers. His theory

\* See *ante*, p. 101, and preceding issues.

rests, first, on certain statements in our annals, the Annals of Ulster mentioning the destruction of fifty-seven of them in consequence of a severe earthquake, A.D. 448; and, secondly, Mr. D'Alton thinks that it was impossible the Christians would have erected churches of wood and bell-towers of stone, or have bestowed incomparably more care and skill in the erection of these towers, no matter for what use they may have been intended, than on the churches, which should be their first care. [See Annals of Boyle, vol. II.] The late George Petrie founds his opinion of their Christian origin, firstly, on the assumption that the Irish did not know the use of lime-mortar before the time of St. Patrick. In support of this assertion the talented antiquary, however, gives no evidence. Secondly, on the presence of certain Christian emblems on some of these towers, which he points out by name; and, thirdly, on the assumption that they were used as keeps, or monastic castles, in which church plate or other valuable ecclesiastical property was concealed, or wherein the clergy could shelter themselves from the fury of the Danes or other invaders. Now it must be admitted that the presence of Christian emblems, carved or graven, on our Round Towers, such as the cross, which may be seen cut on Ogham pillars, may merely indicate or prove that those edifices were utilised by Christians, and consecrated to Christian use, and if they were built for keeps, or places of safety for the concealment of church property, or the shelter of churchmen, a different form of structure would have suggested itself to the minds of the clever masons who erected them.

General Charles Vallancy, who laboured not a little in the interest of Irish history and philology with a success not at all equal to his enthusiasm or the amount of literary work executed, thinks that our Round Towers were Persiac structures, dedicated to the fire-worship of the sun. This laborious antiquary has found faithful disciples in this country to adopt his theory and preach it—"If we adopt the General's [Vallancy's] hypothesis," says Mr. Bell, "we need set no bounds to our imagination, for in that case we may date their origin as early as we please." Not quite so, for architectural form and construction has still to be accounted for, and the date of the introduction of lime-mortar or cements.

The author of a recently-published volume on the early and "Ecclesiastical Architecture of Ireland," Mr. Richard Rolt Brash, though we believe he has written elsewhere upon the subject, declines in his last published work to enter into a discussion on the vexed question, because he does not believe in their ecclesiastical character. Mr. Brash is a practical architect as well as a historian, and his views anent our ancient buildings of the pre-historic and Christian period are entitled to every consideration. Although he eschews the Round Tower discussion in his late work, it will be found an invaluable reference on our ancient ecclesiastical structures, and for the side-lights it affords to the origin and age of that class of buildings he at present refrains from discussing.

In our next paper we will further review the opinions of native writers, historians, antiquarians, architects, artists, and others who have treated the question of our Round Towers and the subject of Gothic Architecture in Ireland.

## TOBIN'S SYSTEM OF VENTILATION.

MUCH has been written lately on a so-called new system of ventilation patented by a Mr. Tobin, a retired merchant at Leeds, and ushered into notice with a flourish in the *Times*, and a reverberation in the little *Echo*. If Mr. Tobin has really made a discovery (which we doubt) he will be entitled to whatever credit attaches, just the same as if he had been an engineer, architect, or medical officer. The daily political press are, however, unsafe guides in scientific or practical matters, for scarcely one of them in London no more than Dublin have a scientific, professional, and practical man upon their staff of writers qualified to pronounce upon the questions appertaining to architecture or engineering. They pay large sums betimes to "specials" for flashy or sensational writing bearing upon the world of politics, but their scientific contributions are procured either at second-hand or in other ways not necessary to describe—perhaps from a third or a fifth-rate professional furbisher without practice. The daily press of London in general have shown a tendency, and the *Times* prominently among the number, to carp at and depreciate the ability of professional men, and lend their influence to a clique of dissatisfied men who are having a grumble and a growl all around, successful and eminent architects coming in for their unreasoning censure. We would not wonder in the least to see some of these newspaper critics pitting the most ordinary building operative, joiner or mason, plumber, well-sinker, or sewer-man, against the most able architect or engineer on the subject of building construction, drainage, and ventilation.

Our contemporary, the *Sanitary Record*, administers a well-deserved rebuke to a writer in the *Times*, who has discovered the "Columbus of Ventilation" in the person of Mr. Tobin. Thrice happy Leeds, if the discovery be a *bona fide* one; for we have an experience of the town of Leeds, from more than one visit and personal examination, and we can truly say that no city we visited in the sister kingdom stood more in need of fumigation and scavenging and general sweetening than unblest and unsanitary Leeds. Mr. Tobin's plan, according to our contemporary and other current accounts, is—

"To introduce air through horizontal shafts under the floor, and deliver it into the room through perpendicular shafts at different points, about five feet from the floor; the current of fresh air ascends to the ceiling, where it meets with resistance, and then curves down imperceptibly into the room, no draught being (it is said) felt at any time. For small dwelling-rooms an arrangement has been made for the introduction of air on the same principle through the window sashes, precautions being taken to modify the draught and prevent the entrance of soot and dust by layers of cotton wool. Mr. Tobin's account of his discovery is, that he was watching the entrance of a stream of water into a mill-pond, and observed that the entering water kept together until it reached the opposite side, where, meeting with resistance, it curved round gently and distributing itself in widening and gentler curves through the whole mass of water. It at once struck him that a similar action would take place with air, and that here was the secret of ventilation. He at once patented his method, and has since applied them as described. Upon this the writer in the *Times* breaks forth into the following—"The discovery that the pressure of the atmosphere can thus be utilised as a perpetual source of air-supply without the aid of fans or other mechanical contrivances; the discovery that all draughts can be obviated by the employment of vertical entrance channels, provided only that their mouths are not too near the ceiling, and the discovery that improper lowering of temperature is prevented by the circumstance that the rate of entrance air is governed by the demand, are truly comparable in their simplicity to the balancing of the egg by Columbus." They may be so, but the assumption that the merit of them belongs to Mr. Tobin is one of the most remarkable pieces of ignorance that it has been our lot to meet with in a well-informed paper. Mr. Tobin may certainly have overcome some practical difficulties of application in special cases, for which he deserves all the credit due to them; but beyond this there is absolutely nothing new, and nothing that has not been applied already, and successfully, by others. The 'disco-

very' that the pressure of the atmosphere may be utilised for ventilation purposes was practically applied by Sutton before the middle of the last century, and it is nigh upon a hundred years since the law was stated as a definite mathematical formula by Montgolfier, since which time the principle has been applied by numbers of practical men. That houses and other buildings have not been properly ventilated has chiefly been the result of neither architects nor the public attending to what scientific engineers told them. This has been correctly put by Captain Galton in his letter to the *Times* of April 12, where, however, he has hardly stated his own case strongly enough. The principle of introducing cold air thrown up against the ceiling is the same as that of the Sheringham valve, which has been utilised in the system of ventilation by the Barrack Commission for the last sixteen or seventeen years, the strength of the current being modified when required by means of gratings or wire gauze, just as in Mr. Tobin's plan. The ventilation by the window sashes has been proposed frequently, particularly by Mr. Hincles Bird and others. The only difference between Mr. Tobin's plan and others is that he has no provision for warming the air in winter, as in Captain Galton's arrangement. Now the greater part of our weather is practically winter weather, and no ventilation is possible always without means of warming the air. It is to be presumed that the writing of the *Times* article was entrusted to some one supposed to be in possession of at least elementary knowledge of the subject, but this must have been of the very slightest kind, otherwise he would hardly have given the extraordinary explanation of Mr. Tobin's experiment."

Our contemporary further remarks very properly that the writer in the *Times* appears to be in complete ignorance of the laws of the diffusion of gases, by imagining it to be quite an unnecessary thing to get rid of foul air at all. We are then to believe that the respired air is completely used up and condensed in the under part of the air space, and ample room is allowed for the inlet of fresh air without the provision of any outlet at all.

This is certainly a new idea, but it does not hang together on examination. As Captain Galton and others have shown, and as common sense would suggest, there must exist an outlet of some kind. With all openings securely closed, a backward current will take place through one of the inlet pipes of supply. If man does not supply an artificial outlet, nature herself will establish a current, and will not be long in doing it. A Mr. Carter, who has written to the *Times* in support of Tobin's claims, and in opposition to Captain Galton, speaks of the efficiency of the new system as applied to the wards of St. George's Hospital, London. We will need further testimony before we can swallow, either by wholesale or retail, what has been advanced in respect to this system. It appears that after three months' trial the Corporation of Leeds have awarded Mr. Tobin an honorarium of £250, to express their sense of the benefit he conferred upon the town. We will not deny that borough buildings in Leeds needed ventilation, and are improved by the application of the system as patented by Mr. Tobin; but we believe his apparatus, or *modus operandi*, is imperfect, and that he will be convinced of it if he lives. We give him that degree of credit which our sanitary contemporary accords to him, but no more; and we deny *in toto* that he is the inventor of the principle he claims, being only the accidental adapter of a system of ventilation he imperfectly understands, and his newspaper patrons do not understand at all.

## DUBLIN MECHANICS' INSTITUTE.

THE annual examinations under the Science and Art Department, South Kensington, are now being held in this Institute. The inorganic chemistry class was examined on Wednesday evening, 28th ult. The Government Inspector, Colonel Murray, R.E., presided, and the following members of the committee attended:—John Burke, Esq., P.L.G.; and Messrs. J. Leahy, M. Killeen, and E. O'Shea, secretary. On the following Friday the examination of the theoretical mechanics class was held. A large number of pupils went in for examination. On the 6th and 10th instants the examination of the classes in magnetism, electricity, and geology will be held.

## PUBLIC RIGHTS AND PUBLIC NUISANCES.

## TWENTY-EIGHTH ARTICLE.

## ADULTERATION—BEEF, MUTTON, PORK, SAUSAGES, FISH, ETC.

THE dearness of butchers' meat of late years in cities and towns, placing it beyond the reach of the poor as a constant diet, has led to the manufacture of various preparations designed to supply the want. Still, owing to various trade exigencies, a cheap class of butchers' meat is put upon the market—the meat of diseased animals, or animals that have died without being killed, or animals killed that are in a dying state. Again, when the demand is not brisk at any particular time for flesh meat, a surplus remains upon the butchers' hands, and, if in summer, this needs to be disposed of somehow or other before it becomes offensive both to the sight as well as smell. Accordingly, this meat is sold at two pence or three pence a-pound cheaper than the fresher kind, and what cannot be disposed of to the individual household purchasers, is sold as a "job lot" to some rascally manufacturers of potted meats, puddings, or sausages. It is not only the meat of diseased animals that is unwholesome, but the flesh of the most healthy, under certain conditions, as we shall see, becomes dangerous to eat. Dr. Taylor affords us in his work some admirable information, and we shall here reproduce some of his observations.

"The flesh of the most healthy animals is rendered unfit for food when it has passed into a putrescent state. It is not merely unwholesome, but highly irritant, causing rapidly vomiting, purging, pain, and other symptoms lead at once to the expulsion of the noxious food from the body, and the person then recovers; the young, the old, and the infirm may, however, be so prostrated by vomiting and purging that they may sink from exhaustion. Animal matter in a state of partial decay, or in the transition state of putrefaction, must be regarded as of a poisonous nature. Much of the cheap butchers' meat sold to the poor is in a state of decay, and is quite unfit for human food. . . . In January, 1851, the family of a surgeon residing near London, were all affected with symptoms resembling irritant poisoning, after having partaken of a hare which had been stewed in a clean earthen vessel. The surgeon informed me, the second day his wife was seized with vomiting, and purging, giddiness, heat in the throat, and general numbness, with inflamed eyes. Other members of the family vomited, and in the course of a few days the symptoms disappeared. I examined the vomited matter and found it to consist of portions of the hare partially digested but in a state of putrefaction, so there was abundant evidence of sulphuretted hydrogen in the liquid. There was no mineral poison of any kind, although the symptoms, it will be observed, were rather like those occasioned by arsenic. It had been remarked by this family that a silver spoon which had been used in serving out this unwholesome food was turned of a brown colour, no doubt from the chemical action of the sulphuretted hydrogen, and this may be taken as a good domestic test of the putrefied condition of such food. Nature generally applies an appropriate remedy in the fact that the food itself produces copious vomiting and purging." Quite true, but with the young and weak, and the very feeble and old, the vomiting sometimes produces the exhaustion that accelerates death.

The vendor, then, who knowingly retails unwholesome or diseased meat, should be held accountable for the consequences. There are but few butchers indeed so ignorant as not to be conscious whether the meat they sell is sound or unsound. They certainly know when they purchase the carcase of a diseased animal, or when they pole-axe a beast fresh from the dairyman's yard. Good milch cows only pass into the butchers' hands to save a dead loss to the

dairyman, and often disease has made a dangerous advance before the pole-axe does its work. Rich and poor sometimes, in these instances, pay dearly for their pound of steak. The meat of animals badly housed, used, or over-driven, cannot be considered sound, and instances have been known where such meat produced poisonous effects.

Dr. Letheby and other public analysts have pointed out what are the characteristics of wholesome beef or mutton, and these conditions are endorsed in our public health manuals—1. It ought to be of a pale, slightly brownish red colour, neither of a pale pink on the one hand nor of a deep purple hue on the other. If pink, disease is indicated, and if purple, the animal has probably not been slaughtered, but has died with the blood in it, or has died from acute fever. 2. It should have a marbled appearance, from the ramifications of little veins of fat among the muscles. 3. It should be firm and elastic to the touch, and should scarcely moisten the fingers. Bad meat is usually wet, sodden, and flabby, with the fat looking like jelly or wet parchment. 4. It should have little or no odour, and not disagreeable, for diseased meat has a sickly, cadaverous smell. Any disagreeable odour is most easily detected when the meat is chopped up and drenched with warm water. 5. It should not shrink or waste much in cooking. 6. It should not become very soft and wet on standing for a day or so, but should, on the contrary, be dry on the surface. It is recommended that the liver of the animal be obtained and carefully examined for *distomata* (flukes), which are flat worms, flounder-like in shape, and about the size of the nail of the little finger.

Pork, as an article of diet, is more in general use than formerly. Unsalted pork should present similar characters to that of beef. The meat when sound is of a very pale red tint. The meat is infested betimes with a dangerous parasite called *trichina spiralis*, and where these are present the meat will be found of a dark colour. This parasite can scarcely be discovered with a magnifying glass. There are other parasites indigenous to the pig, and one, the *cysticercus*, or measles, can be discovered with the naked eye. The little sac of the latter is as large as a hempseed. Many diseased pigs are passed into the market, and consequently care is needed in the purchase of pork. There is nothing belonging to the pig but is marketable and utilised, its blood and intestines within as well as its skin and bristles without.

Concerning sausages, we would advise the greatest caution. Home-made sausages, or when made by a manufacturer of undoubted credit and respectability, may be relied upon, and usefully resorted to for a change as an article of diet. It is nevertheless true that there is scarcely a more deservedly suspicious article of food in the market. We have ourselves known of the vilest refuse of diseased meat being consigned to sausage manufacturers—meat reeking with foulness and putrefaction. Good sausages, let it be understood, are even liable to partial decomposition, no matter what kind of meat may be used in their manufacture. For ourselves we must confess we have always a suspicion of sausages, however tempting they may appear in the shop windows. Some folk, however, will have them, and for the information of these it may not be amiss to tell them that good sausage meat should be quite firm, not moist, gelatinous, or vesicular. It should be free from all disagreeable smell and taste, and from acidity.

In speaking above of the properties of good beef we might have observed that veal in many particulars is totally different from beef. It contains a smaller quantity of the alkalies, and it is said there is 15 more per cent. of phosphoric acid than is necessary for the formation of salts. It contains also little of the fibrine of flesh, and proportionately more of the fibrine of blood, which is less digestible than the former. Veal is also rich in gelatine, which is not nutritious, and seldom contains any quantity of fat, and

also very little iron. So in all these points it is the reverse of beef.

Poultry, with the poor, is not an article of constant diet, and while the rich knowingly consume game in a living putrid condition, from taste, fashion, or fancy, they may be allowed to do so, particularly as the world of common sense is unable to exercise any power for good over the world of fashion. It may be remarked here, if ducks, hens, geese, or turkeys, were foisted upon the rich purchasers in the same diseased condition that they willingly take game birds, the uproar would be great, and the danger would, no doubt, be a very magnified one. Let those who like maggots in their poultry or game, as well as maggots in their cheese please themselves, for it seems useless to remonstrate with them. The conditions given in 4, 5, 6, in regard to good beef, may be taken as also applying to poultry.

As to the choice of fish and vegetables, a good housewife ought scarcely to need any advice. Fresh fish is known by its appearance and feel; it is free from any offensive smell, and it is not soft or gelatinous. Fish, however, is often doctored, particularly salmon, a bright red colour being given to the gills by being artificially tinted. Hawkers of fish in our streets have often, by the means of blood, made their rather stale herrings pass off in the city for "fine fresh herrings." Fresh salmon and trout should have the well-known pink-coloured flesh, and also, when the finger is drawn quickly across the fish, the depression so caused should fill up quickly. The stiffness or rigidity of sea fish is generally sufficient to indicate its fresh condition. In the fish trade as well as in the meat trade there is a considerable amount of deception; and fish that is found to be unsaleable is sold in "job lots" to fish curers and smokers, and finds its way once more into the market, to the injury and danger of the poor.

In another article we will probably sum up all we intend to say at the present season on the subject of adulteration, and the duties of the sanitary authorities in connection. For upwards of a year, as our readers are aware, we have devoted a series of papers to the discussion of almost all aspects of the public health question. To the condensed wisdom of others, whose views we have adopted and acknowledged, we have added the gleanings of our own experience, and we hope with some useful effect; but we shall not now further anticipate the remarks we may offer by way of conclusion to our present series of articles in the interests of sanitary reform and the public health.

## FEVER DENS.

At a late meeting of the Dublin Sanitary Association the following cases were reported and brought under the notice of the Public Health Committee of the Corporation. "19 Christchurch-place.—The first patient sickened with fever in this house about five weeks ago, and has from that time to the present been attended by the health officer of the district. No notice was taken by the sanitary authority until last week. The rooms have now been disinfected. Nothing had been done about cleansing yards or passage up to April the 5th, on which day a case of fever was admitted to hospital from 81 Castle-street. This case occurred in the person of a boy, son of a woman who had kindly undertaken to look after her sick neighbours at Christchurch-place. On April the 6th another case of fever was admitted to the hospital from 19 Christchurch-place, making in all seven persons attacked. 81 Castle-street.—Filthy ashpits—one filled to overflowing. The smell from the yard is very offensive, and is at once noticed on entering the house. A case of typhus removed to hospital from this house. The room from which the patient was removed is unusually clean and tidy." These dens are in close proximity to the Castle and the new Synod House. Where are our well-paid sanitary officers?

# THE ARCHITECTURAL REMAINS OF THE CISTERCIANS IN THE COUNTY DOWN.\*

(Concluded from page 103.)

HAVING put you in possession of these general facts as to the great Cistercian Order, we may proceed to satisfy those architectural souls who yearn and crave for food which they can assimilate, eager for plan, section, elevation and detail.

The Abbeys of Inch and Grey Abbey are the only Cistercian remains which now furnish to us, in the County Down, any architectural detail; fortunately for our researches, we have sufficient of these two abbeys left to illustrate the subject, which is rendered the more particularly interesting from the fact that we have the means (though scanty) without travelling out of the county, of identifying the Puritanical individuality (architecturally speaking) of this Monastic Order, as compared with the more lavish splendour of detail which characterised the buildings of the relaxed Benedictine Order, of which the Cistercian was the reformed offshoot.

We also have preserved to us some of the capitals and carvings of the great Benedictine Abbey, founded by De Courcey in Down, the church of which, wrecked and shattered during the troublous times following the dissolution, served as the great frame-work on which the present Downpatrick Cathedral is erected. The so-called "restoration" of the church, undertaken in the year 1790, has hoarded up to us some charmingly interesting archaeological scraps, in which the architectural history of the structure is written, during its mediæval changes and reconstructions. These have been protected from the subsequent fury of an iconoclastic party strife which swept away, within living memory, Irish crosses and specimens of art-workmanship which we can never replace, and must deplore the loss of at a time when the identity of the so-called St. Patrick's grave is for monumental reasons a *questio vexata*.

Before undertaking the investigation of the Cistercian abbeys of Down, I will direct your attention to the model of a monastery belonging to this Order prepared and published by Mr. E. Sharpe, of Lancaster, who has made Cistercian architecture his peculiar study. In the model plan you will see how the conventual buildings all group around the cloister quadrangle. Now glance from that plan to this of Grey Abbey, or the less complete plan of Inch, and you will perceive a striking coincidence. If we search every one of the sixteen Irish Cistercian abbeys whose remains we yet have (some of the plans of which you have on the wall), we will find in no case any extensive departure from the general grouping of this model plan,—except such as more recent circumstances, such as the troublous times or relaxing of the severity of their rules occasioned.

There were general and particular rules which controlled their architecture in the earlier centuries of the existence of this Order; these rules are embodied in their charter of charity (*charta caritatis*), particularly as regards their conventual churches; the most important of these were, that they should be rigidly plain without lofty bell towers. They were forbidden the use of elaborate carvings or representations of the human form, also all merely ornamental or sensuous features such as stained glass pictures, gold ornaments, coloured decorations, &c. These rules obliged their architects to depend for their effect on "excellence of proportion and chasteness of detail;" to this, combined with the fact that the movement was contemporary with the rise and development of the earlier and most pure of the Gothic styles, may be attributed the excellence of the architecture of all the Cistercian monasteries yet remaining; but is necessary to state that these rules were relaxed early in the thirteenth century, that the Cistercians more or less followed the Benedictines in

employing a greater degree of splendour in their later erections and insertions.

That these relaxed rules effected the abbeys of Down, we have some proof, such as in the stained glass in Inch Abbey, found during the recent excavations, and the encaustic tiles of Grey Abbey. We have some strange-looking carvings of human heads in the corbel table in the chancel of Grey Abbey.

Having briefly noticed these general rules embodied in their *charta caritatis* we will proceed to trace out the coincidence in plan of our local abbeys to the Cistercian ideal, and we are enabled to treat them conjointly in consequence of this harmony.

First of all then as to SITE. As enjoined by their code, the sites in both cases were, and are in secluded spots—in valleys close to water and supplied by never-failing springs. To the practice of building in solitary places may be attributed the fact, that while the abbey churches of other Orders in Ireland are in frequent instances used for divine worship, we have in no case that I know of a Cistercian abbey church so restored to its original purpose. In the course of the plantation of the Ards, a village sprang up close to "De Jugo Dei;" the old church of the abbey, however, by reason of circumstances, which we need not here explain, escaped the tender mercies of the late Ecclesiastical Commissioners when casting about for a site for a parish church for Grey Abbey. Even in England, I believe, there is only one Cistercian church which modern christianity has been sufficiently near to and appreciative of to re-occupy.

The ground plans of Inch Abbey, but more particularly Grey Abbey as it is more complete, are eminently Cistercian, and give us the key to the non-existent buildings or foundations yet under the sod.

The church in each case, in strict accordance with their rule, was and is in its ground plan in the form of a Latin cross.

In my first visit to Inch Abbey I was greatly puzzled by the absence of the western arm or the nave of the church, which apparently had never been in existence; a cross wall which had hitherto been taken as the western end, was complete to all intents and purposes: it had an unsightly gap for a doorway, which, I was informed, exhibited not many years ago some very fine carved stone work, since torn away to scour the hearths of the thrifty vandals of Downpatrick. The abbey church had been written of as being some 85 ft. long; and I was about to conclude that this church was an exception to the general, or, I might say invariable plan which exhibits the contour of a Latin cross. Regarding with suspicion the piles of stonework disconnectedly scattered around and westward of the cross wall, I examined more closely some boulder-like masses, which, when grasses and mosses were cleared away, exhibited several fair faces of masonry. On applying to the proprietor (R. P. Maxwell, Esq., D.L., J.P.) for permission to make some excavations, he promptly placed at my disposal workmen, and they have satisfactorily shown the church at Inch Abbey to have been 170 ft. long. We have several parallel instances in Ireland of this cross wall or division between the Ritual choir and the nave, the former being more particularly allocated to the monks who performed the offices of the church, the large body of farming workmen, monks, and novices, occupying the nave.

We have this cross wall in Holycross Abbey, Hore Abbey, Monasterenagh, and several other abbeys. From a drawing I have of Jerpoint Abbey, made some sixteen years ago by a friend, I think a similar wall existed there also, but since cleared away.

In Inch Abbey the church was hitherto considered to have been aisleless, but the recent excavations, made by Mr. Maxwell, have revealed the foundations and some of the walls of these aisles, which were comparatively narrow, about 13 ft. wide, and somewhat like those in Dunbrody Abbey, of which you have sketch on the wall.

As far as excavations have gone, I am inclined to consider that the clerestory or triforium, as the case may have been, was borne by massive main arches, springing from massive piers, and on examination of the corners of the cross wall at the height from which the arches would have started, we find the capitals completely torn away, but up to that height is fair and uninjured.

The western end of the nave most probably had a doorway, and from the formation of the ground I suspect had a narrow porch or narthex; the extreme north-west angle of the church now visibly shows itself by a block of masonry, very much ragged away, but still bearing a fair corner.

The nave of Grey Abbey has one peculiarity not usual in Cistercian churches: it is aisleless, but this has had a very plausible explanation at the hands of the diocesan architect, Mr. Drew. He considers it to have been an earlier church adapted by Lady De Courcey's Cistercian builders; he considers that he is borne out in this idea by the character of the detail of the doorway in the north wall of nave (see drawing).

I may remark, however, with reference to the very frequent occurrence in Ireland of the pointed arch in juxtaposition with the round arch; we see this in Boyle Abbey, Dunbrody, Jerpoint, and numerous Cistercian structures, but we find the same features in many of the English abbeys—Kirkstall, Fountains, &c.; and Mr. Sharpe writes that just prior to or about the date of the foundation of Grey Abbey, the Cistercian builders generally used the pointed form in their arches of construction, while the use of round arch was still frequently retained in their arches of decoration. And you will derive very much information as to Cistercian architecture in Ireland from a publication\* which has lately been issued by Mr. R. R. Brash, of Cork; in it he prosecutes a most complete and careful investigation of the influences upon the native "Hiberno-Romanesque" of the architectural styles imported into Ireland via the "Anglo-Norman" and "Early English."

The eastern end of Inch and Grey Abbey churches is square; in Inch, pierced by three very long lancet windows, with one smaller similar window over the centre. In Grey Abbey it has a double tier of triplet windows with smaller similar windows over.

The eastern arm of the churches (variously termed, the choir by some, the presbytery and sanctuary by others, but in churchwardens' vocabulary as the chancel) was lighted north and south by large windows; at Inch by double lancet windows at each side; at Grey Abbey by single windows north and south, originally, I believe, of similar character and form as the east windows, but at a later date they had decorated stone tracery inserted on the outer jambs.

In Grey Abbey immediately over these windows will be seen, each north and south, a corbel table, the blocks on the south being of a Norman character, those on the north are carved into human and other heads and grotesques—this is a most unusual peculiarity in a Cistercian monastery, as all carving of the human form was strictly prohibited by their charter. I would conclude that these were inserted at a later date, but that they show a rudeness which does not correspond with the date of the inserted stonework of the window below the corbel table.

The chancel extended eastward from the crossing at Inch Abbey, 42 ft. long by 27 ft., at Grey Abbey but 30 ft. by 24 ft. 2 in. All trace of the high altar in both abbeys has disappeared, but we have in Grey Abbey the fragmentary remains of single sedilia and piscina on the south.

In Inch Abbey there were three seats for the officiating priests, as this rough field sketch shows. All the stonework is torn away, but the line of the cusping is shown in the mortar, and the traces of the corbel blocks from which the cusped arches sprang.

\* By Mr. J. J. Phillips. Paper communicated to the Belfast Architectural Association.

\* "The Ecclesiastical Architecture of Ireland." Dublin: Kelly.



The stonework of the piscina and aumbry has also been torn out by the sacrilegious housewives of Down, who practically showed, by the uses to which they applied the freestone for scouring purposes, that they sincerely coincided with the Apostle's assertion that cleanliness is next to godliness.

On the gospel side of the choir we have in both abbeys the remains of arches, in the position usually found over the wall tomb of the founder of the abbey. In both abbeys there were very vigorous explorations made in the neighbourhood of these recesses in the search for treasure; in Grey Abbey the stone lockers for sacred vessels, books or linen of the altar were laid bare, and the wall broken through to the adjoining chapel.

In Inch Abbey the nave arch, transept arches, and chancel arch have all disappeared; we have only the responds of the moulding, till lately, peeping out of the *débris*, which Mr. Maxwell has had cleared away, revealing the magnificently moulded bases and pier responds, somewhat similar to those in Byland Abbey, Wenlock Abbey, and Rievaulx (drawing). We have also such portions of the flagging as the utilitarian spoliation of the late Jack Martin did not pull away and sell.

Harris, in describing this abbey in 1744, and Dr. Petrie in later years, writes of the very elegant construction of one of the arches then standing, and we may conclude from their description that some portion of the bell-tower wall was then standing.

At Grey Abbey we have some of the walls of this low central tower still remaining over the north transept arch and the nave arch.

These fragmentary remains of the walls of the central tower show the stone string-courses, or weather mouldings, which serve to mark the slope and height of the original roofs of nave and transepts.

The intersection of the four arms of the crux was covered with groined barrel vaulting, as may be seen from the remains of the springing of four groined stone ribs over the north transept arch.

In both abbeys we find the usual side chapels, opening off the east side of the north and south transepts, that is, two chapels each north and south of the choir. In Inch Abbey the scanty remains of quadripartite groined vaulting of these chapels indicate the architectural magnificence of this abbey. We have here a sketch of the corner corbels and caps from which the ribs sprang, and since my first visit a still more beautiful corbel cluster has been brought to light (at my direction the modern wall which covered it, erected by a cowherd, was removed). We have also found the base of the pillar between the chapels, with responds of the mouldings.

I am in great hopes of finding in Inch Abbey, in the north chapels, some encaustic tiling. Such objects have been picked out and sold, as a local ancient informed us, "by the yard."

I roughly sketched here the probable appearance of the south chapels, with their vaulting and central column.

At Grey Abbey the chapels had simple barrel vaulting, and the arch moulding was very bold, as the scattered fragments show.

In the troublous times which followed the dissolution, the abbeys suffered terribly. At Inch the north transept has been built across its entrance from the church; this has saved for us the east pier, and, I hope, the capital from which the transeptal arch sprang at that side.

This north transept had at its north-west corner a circular winding stair, affording access, probably, to the tower. In Dunbrody Abbey this curiously communicates by a wall passage to some small secular apartments over the north side chapels. We have similar apartments in Holycross Abbey. At Inch Abbey there is a singular correspondence in the fragmentary traces of a wall passage leading across the north windows of the transept.

In Grey Abbey we find, in the south transept south wall, the remains of a stone newel wind-

ing stair (sketch); the existence of this stair is interesting evidence of the Cistercian origin of the building. A pile of *débris* at present covers its site at Inch, which, when removed, I may safely predict will reveal some traces of this Cistercian conventual feature. You have its existence in several other abbeys in Ireland duly shown on the plans. Mr. R. Young, architect, has kindly given me this plan of Glenluce Abbey, in Scotland, showing this stairway. Three times every night these monks had to enter the church for nocturns, and this stair formed the mode of communication to it from the dormitories, which extended over the frater or monks' day-room. We have uncovered at Inch a stairway close to the site usual for the night stair, but it is undoubtedly a more modern construction. This abbey was used as a residence and a castle long after the suppression of the monasteries.\*

To assist me in describing, and you in understanding, the grouping of the conventual buildings around the cloister garth or quadrangle, I have made this drawing,† showing the probable appearance of Grey Abbey say about the year 1210.

Adjoining the south transept of the church in each abbey we find a narrow chamber as usual; this would be the *sacristy*. In both abbeys we have the doorway of communication between this vaulted chamber and the church.

The *chapter-house*, as usual, occurs next in order. At Grey Abbey its remains are more complete and characteristic of its usual plan than at Inch, which seems to have been completely gutted; it has been divested of every scrap of architectural detail, its walls rasped and quarried. The local ancient informs us that at the east wall of this chapter-house was dug out the largest human skull he ever saw. We succeeded in hunting up a fragment of one of the flat cuneiform stones belonging to this chapter-house; for the last twenty years it had served the utilitarian purpose of door-step to a barn or stable; on it is incised the stem of a carved cross and the chalice, indicating the tombstone of an abbot or other eminent ecclesiastic.

The *passage or parlour*, which usually lies adjacent to the chapter-house, shews very distinctly in Grey Abbey, but as yet the division wall has not been made visible at Inch.

The walls of the *frater or monks' day-room* are visible in both abbeys—in Inch it has been extensively quarried, and as yet we cannot say how far southward it extended. In Grey Abbey it was evidently vaulted, and we have the moulded bases of a few of the central row of columns.

We have found in Inch Abbey an extraordinary-looking structure built up against the sacristy wall, and resembling a large chimney shaft 2 ft. square on the inside. It has locally been denominated the "murder hole," and has been the bugbear to frighten naughty children in the neighbourhood; but it has been cleared out, and presents all the features of a *latrine* for the convenience of the parties who inhabited the upper storey. There is a curious communication running into it like a sewer from the south transept, and they communicate with the underground sewer running close by. On this point I may give a quotation from Viollet le Duc's Dictionary, as it is quite apropos:—"Oubliettes," a deep hole hollowed under the floor in which they threw people that they wanted to make disappear. There is not a castle of the middle ages in which they do not show some 'oubliettes,' and nevertheless we must confess that we have

very rarely found the deep holes to which this name can be given; generally that which they consider 'oubliettes' are 'des fosses d'aisance,' of which it is very easy to recognise the employment, no matter how little one is familiar with the art of construction."

The conventual buildings which we have been describing lay to the east side of the cloister quadrangle. We now arrive at buildings usually found at the south side of the conventual group; and in Grey Abbey we find the remains of the lower part of the flight of steps leading to the dormitory, which, as explained before, extended over the frater, the chapter-house, and communicated by the night stair to the church.

The *kitchen* at Inch and Grey Abbey is visible, but at Grey Abbey unmistakably so, as the ope of its fireplace is quite discernible. In Inch Abbey its features are all destroyed.

The *refectory* in Grey Abbey is quite in consonance with the Cistercian plan; it lies north and south, and has its pulpit, from which, during meals, a reader "entertained the monks with intellectual, while they entertained themselves with material pabulum"; but in Inch Abbey it has been quarried away.

The *buttery* has disappeared in both abbeys, but in Grey Abbey we have the evidence of its former existence in the line of weathering shewn at the west side of the refectory.

The *domus conversorum* usually lay along the west side of cloister garth, and was allocated to the use of the conversi of the monastery; in neither abbey have we any vestige of its existence.

The *cloister garth* in Grey Abbey is oblong; this is somewhat unusual, as the quadrangle is usually found to be a perfect square. Availing myself of the proprietor's permission to make search for some trace of the western wall of the garth, I had excavations made, and disclosed the foundations of a curtain wall with several offsets, and traces of the gateway.

Both at Inch and Grey Abbey we have the sewer by which their necessaria were flushed with water from some well-supplied reservoir on the adjacent hill, also serving to carry off the sewage and refuse of the kitchen and monastery. In accordance with popular notion and local time-honoured tradition, in both cases they have been considered to lead to the neighbouring abbey—that at Grey Abbey to the (Benedictine) Black Abbey, two miles distant; this at Inch, to the Benedictine abbey, on which the present Down cathedral stands.

Having concluded this descriptive portion of the paper, we must here remark that both Inch and Grey Abbey were for many years used as quarries to their respective neighbourhoods. "Noble Quarry" was Inch Abbey; its remains are scattered in many a townland for miles around, and, like its Benedictine neighbour of Down, its time-honoured stones have served alike to build the mansion and the hovel; the fields are marched and the roadways paved with its hoary relics; churches of all creeds in Downpatrick, and for miles around, are indebted to the old abbey for most of the stones with which they are built—"hideous painted and whitewashed parallelograms that have been raised up and call themselves churches in these latter-day times."

This island of Inch—which possessed venerable antiquity and early Christian heirlooms before De Courcy fought the Ulidians—would well repay anyone who could spare time to investigate it inch by inch. Here have been found all the sacred relics of holy men, in whose hearts the fire of Christianity burned, when elsewhere throughout Christendom it had gone out and was extinguished.

It is matter for congratulation that these venerable ruins are now held in reverent appreciation by their respective owners, and that, as far as can be done by them, they are to be preserved from further dilapidation, and that—

"Ivied arch and pillar lone,  
Pleading haughtily for glories gone,"

are now cherished for the benefit of field naturalist, archaeologist, art student, and

\* "In 1572, after the failure of Sir Thomas Smith's project for the plantation of the Ards, a more extensive scheme of colonisation was planned by the Earl of Essex; he was assisted by several English noblemen. They left England late in that year with a fleet. Essex landed at Carrickfergus early in September, but several of the vessels were dispersed by a storm, some to the Isle of Man, and some to the Cove of Cork. The ship in which Earl Rich sailed was driven to Killybeg, County Down; he removed thence to the 'Castle at Inch,' where he remained for some time, and then returned back to England 'heartily sick of the affair' of the plantation."—*Vide Downpatrick Recorder's Antiquarian Contributor*.

† A lithograph of this building will be given in a future issue.

architect. Under the shadow of these vestiges of a religious and even an heroic age the student of his country's history can better catch a glimpse of the fervour and enthusiasm which prompted the founders, and of the correctness of the principles which guided their architects and constructors; and he can, in the desolation wrought by Vandal hands on these wonderfully beautiful architectural structures, read of the long ages of sorrow and shame through which they have been preserved; here he can yield himself to the witchery and the charm for the sentimental soul which dwells—

"Where the ivy hangs in masses  
Like a clustering mantle thrown,  
And the many-feathered grasses  
Quiver o'er the sculptured stone."

### UNKNOWN DUBLIN.

BY THE "OLDEST INHABITANT."

Edited by Mark Philip O'Flanagan, T.C.D.

#### BENCHERS'-STREET.

MANY years have passed since we first walked up the incline of this street, once sacred to noble families and others whose patents of nobility were not of the most honourable creation. It matters but little now, for those whose names were known to us in our early schoolboy days, and to our fathers and grand-fathers, have passed away. In sooth, this street has witnessed many changes in the character of its residents. The most of the families residing here at one period were rich and influential; they kept their own coaches and carriages and dozen of servants, and their mansions or town dwellings of five storeys were built to last, and not to sell and crumble into filthy ruin. If any building operative of this city would like to see the amount of joinery one town residence of the Irish nobility or gentry of the last century contained, let him visit one of the old palatial dwellings of Benchers'-street; let him examine the character of the window and door trimmings, the staircase, broad and massive hand-rail, and wide well hole, and also scan the fittings and furnishings from skirting and surbase to cornice. What a contrast it presents with the petty, half-starved, skimpy, and skeleton gimcrackery joinery of our suburban dwellings of to-day! The town mansions built in Dublin for the Irish nobility and gentry between 1770 and 1800, and more particularly in the last twenty years of the eighteenth century, were models of good masonry, brickwork, stuccowork, smithwork, and joinery.

The last time we passed through Benchers'-street recollections came thick upon us of old names and memories, and we determined to re-visit it again in company of one whose memory extended back to days when its glory was fresh, though a little shadowed by the political changes that occurred in this country. We will now let our kind cicerone the "Oldest Inhabitant" tell as he deems best the bygone matters that occur to his memory:—

"Benchers'-street, you are probably aware, sir, received its name from the Benchers' Hall and Courts at the top of the street. The ground now occupied by these classical and legal buildings was formerly the Primate's Garden, so called after the Rev. Richard Robinson, Primate, and Baron Rokeby, of Armagh—a very good man. He resided for several years in this street, his town residence being here. The Archbishop of Armagh was a great church builder and restorer, and owing to his labours the city of Armagh and the cathedral were greatly improved. He was one of the early patrons of Francis Johnston, the architect, of whom this city has reason to feel proud; and he also employed Thomas Cooley, the architect of the Royal Exchange (City Hall) to do sundry works in connection with the cathedral in Armagh. In matters of religion and education, Primate Robinson, of Armagh and Benchers'-street, was foremost in his day; and the architectural profession of Ireland owes him not a little for the impulse he gave

to their art in this country, at a time when it needed encouragement, and was worthy of it.

"Perhaps I may as well mention a few of the distinguished names associated with this street in the days of the Irish Parliament. Besides Primate Robinson, there were several lords, earls, viscounts, and members of the Irish legislature, who had town residences in this street between 1782 and 1800. Among these were Richard Boyle, Earl of Shannon, who was also a Knight of St. Patrick; Dr. Lewis Jones, Bishop of Kilmore; Dr. John Hotham, Bishop of Clogher. Among the Irish members of Parliament were: the Hon. Robert King, commonly called Viscount Kingsborough, M.P. for Cork; Richard St. George, member for the borough of Charleville; Right Hon. John Ponsonby, member for the borough of Newton; Right Hon. Luke Gardiner, member for Dublin City, of Mountjoy and Gardiner-street memory, afterwards Lord Mountjoy; Right Hon. Denis Daly, member for the County Galway; Denis Bowes Daly, member for the town of Galway; Sir Edward Crofton, Bart., member for County Roscommon; Right Hon. Owen Wynne, member for the borough of Sligo; Owen Wynne, the younger, member for County Sligo; John Francis Craddock, member for Clogher. There were several other influential families lived here previous to the Union, and some distinguished names connected with the legal profession.

"The first stone of Benchers' Hall was laid by Lord Clare, Chancellor of Ireland. The tenure of the land was very doubtful, as being held under the Dean and Chapter of Christ Church; and, after much legal consultation and delay, an Act of Parliament had to be passed to secure the title. The Benchers' buildings were erected at the commencement of this century, and additions thereto afterwards. The main and original buildings are from the designs of James Gandon, and, despite the position of the site, and of being crowded in at the rear, it has been accounted a good specimen of the architect's ability. The front is a handsome one of hewn stone, the back of the edifice being to the city. It is not necessary for me to describe its architectural or ornamental details, so I will merely state that all the statuary of the building was executed by the clever but ill-requited native artist, Edward Smith, who always found a true friend and patron in the architect. Inside the building there were several niches provided for statues of men who did not fill them; and there are portraits of Irish notables worthy of notice. The library, a separate building, was erected in 1827, from the designs of Mr. Darley, a city architect. Previous to the erection of this building the library was in a room of the main building of the Benchers' Hall. A portion of the books of the library was originally the property of Christopher Robinson, Senior Puisne Judge of the Court of King's Bench, and a selection of law books was made by Charles Earl Camden, Lord Chancellor. There are a number of rare books here, at least there were some years ago, among which was a curious MS. volume entitled the 'Black Book,' and the volumes of the 'Transactions' of the Benchers. The librarian for many years was Henry J. Monck Mason, LL.D., brother, I believe, to William Monck Mason, the historian of St. Patrick's Cathedral, and author of other works.

"After the passing, sir, of the Act of Union, Benchers'-street lost many of its noble residents, and the Irish members of the native Parliament who had town residences here gave them up, and such of them as obtained seats in the Imperial legislature procured town residences in London during the session of Parliament. Few, indeed, kept up town residences in Dublin who had seats in the Parliament over the water, though of course they retained their country residences in this island. Before the Union, owing to the number of rich families residing in Benchers'-street, the merchants and traders of Polton-street, Staple-street, Big-Tree-street, and adjoining

streets did a brisk trade, and this trade lasted even for several years into the present century, for, though some of the original inhabitants left, their places were supplied by a respectable gentry.

"About 1818, and for a few years subsequent, among those who continued to reside in this street were: Cornelius O'Callaghan, Lord Lismore, at 4; Charles John Gardiner, Earl of Blessington, at 8; Lady Harriet Daly, at 8; Robert Edward King, Lord Viscount Lorton, at 14. Among the judges, barristers, and other notables were: the Hon. Francis Hely Hutchinson, at 2; the Hon. Arthur Moore, third Judge of the Common Pleas, at 7; Samuel Ward, LL.D., at 1; J. Whestone, King's Counsel, and a goodly number of solicitors, some of them of distinguished firms. John Hawkins and John Swift, proctors of the Ecclesiastical and Prerogative Courts, lived or had offices at 9 and 15, and John Cooke Rogers, a known public notary was also a resident in this street. A Captain Bryan lived at 11, who afterwards became a major.

"This street, sir, fifty years ago had very respectable families resident in it. Coming down to the years between 1830–40, the wealthy families were disappearing fast, and but few of the old residents remained. The houses of the wealthy nobles and gentry were becoming occupied by well-to-do solicitors, or firms of solicitors or others connected with public boards, trusts, or companies. A little over forty years ago or perhaps later, the Hon. Arthur Moore the judge; F. Moore the seneschal of Thomas-court and Donore; the Hon. Mrs. F. Hutchinson, the Lady of the Hon. F. H. Hutchinson; and Lady Harriet Daly, still resided here, with a few private and well-to-do families, who looked upon the street as an aristocratic one, and had recollections of its early brightness.

Among the persons who resided here before the Union, whose names I have mentioned, were men of whom many strange particulars could be recited, of doings in the Irish Parliament, of duelling transactions, of brave deeds, of corrupt ones, of flashes of fire and genius, and of memories that are as well forgotten. Some, sir, were Irishmen racy of the soil, some were Englishmen more Irish, for awhile at least, than the Irish themselves, and more were creatures of the earth earthy whom no patents of nobility could ennoble.

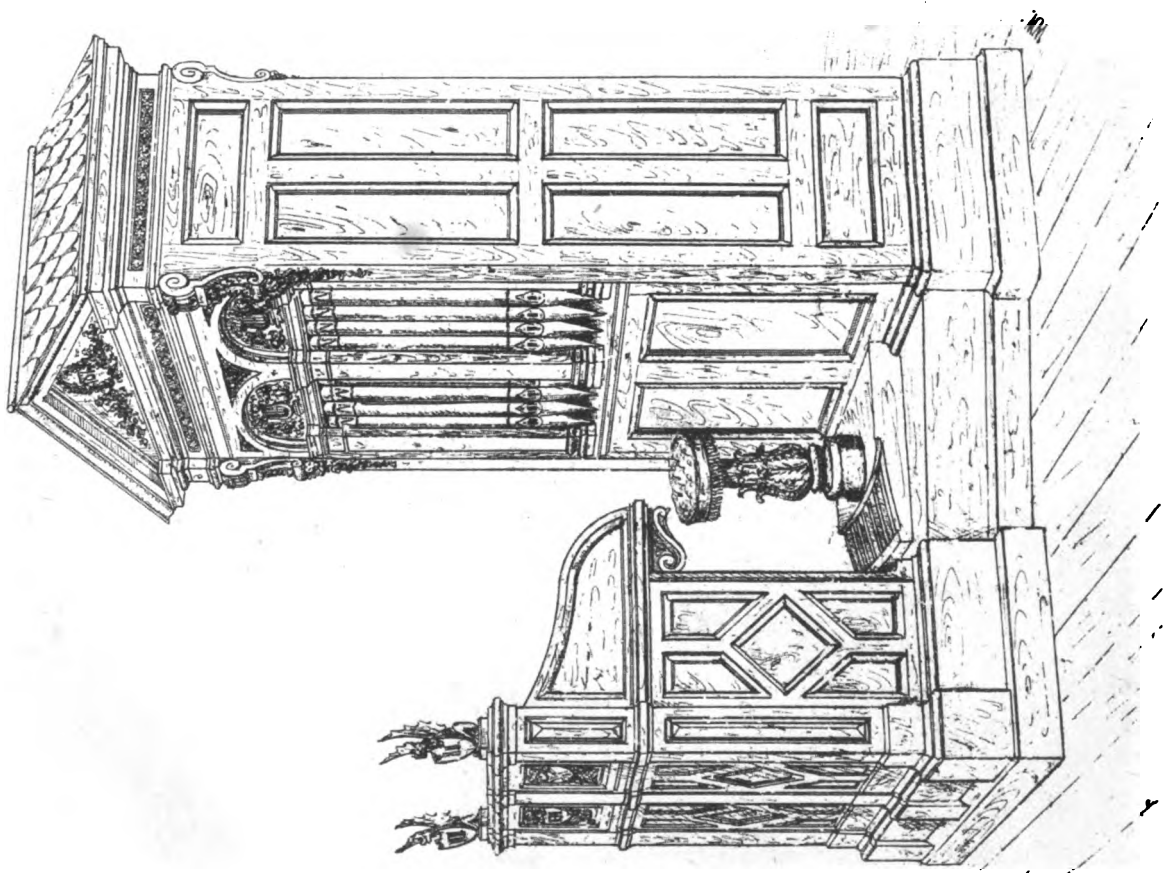
"'What can enoble slaves or cowards?  
Not all the blood of all the Howards.'

"I should have mentioned to you, sir, that before the embodiment of the different courts in the new buildings of Benchers' Hall, the Prerogative Court was held in the large private mansion of Primate Robinson adjoining the new buildings. In this court, some years ago, were to be seen a number of manuscripts called 'Regal Visitation Books' and other MSS. and sundry records. I cannot say whether all these documents are now lodged in the Record Office built a few years ago for the safe custody of our national records. It was stated fifty years ago in Dublin, that one of the Royal Visitation Books was in the hands of Sir William Betham, the Ulster King at Arms. Whether it had been restored to its proper place since the antiquary's death I know not. The oldest record of the court under notice was stated to be dated 1530. Some of these ancient documents and transactions doubtless belonged to one or other of the old Benchers' Inns or courts of Dublin.

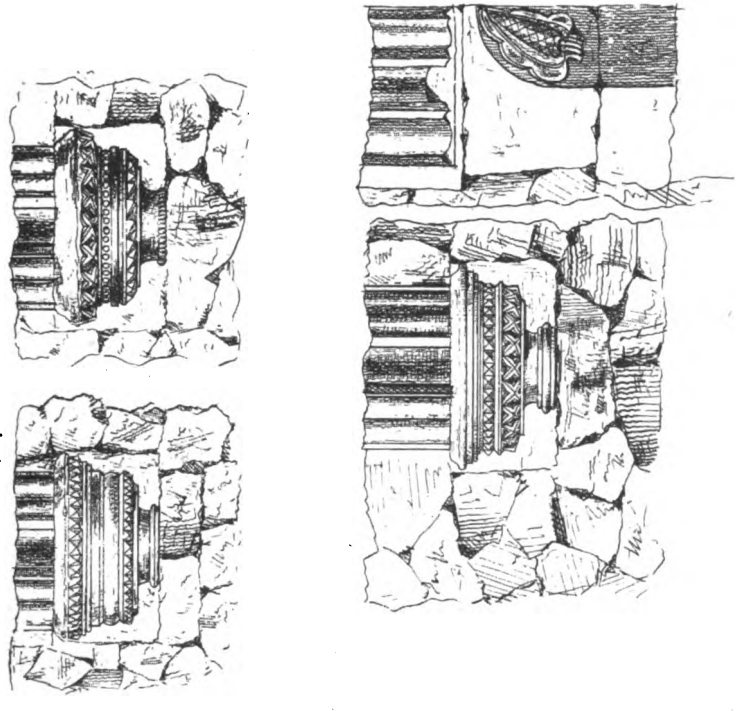
"The Consistorial Court was originally held in the cathedral of the diocese, and in the present century it was held for some years in St. Stephen's-green. It has records dating back to 1600. It has some well-preserved documents called 'Title Books.' The High Court of Admiralty is of late foundation, dating back to about 1747; its native independence was preserved by a special clause in the Act of Union.

"Preston's Inns, sir, stood where the City Hall now stands, and was once the mansion of Sir Robert Preston, Chief Baron of the Exchequer, but he resigned it for law

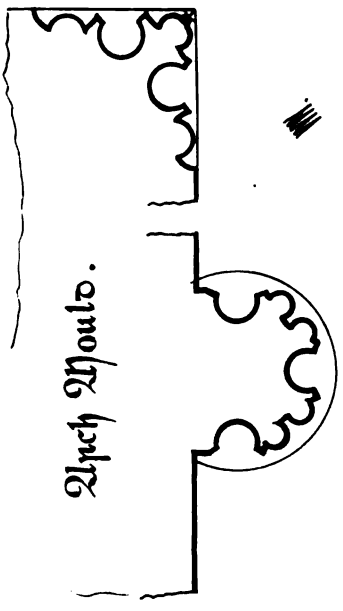
THE ORCHESTRION.



Sketches in Spaisjue.  
Cº Gilcenny.



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purposes. Afterwards the Inns were removed to the dissolved monastery of the Dominicans on Inns-quay, where our law courts were subsequently erected. The Benchers' Society had many changes since their first formation. Henry VIII. granted some land in St. Michan's parish, in St. Patrick's, and in New-street, towards the support of the Society, and for students studying the law. A statute was also passed which made it obligatory for students of law to reside for two years at a London inns of court. This was intended to assist in introducing the English practice of law into this country. The Brehon laws existed, sir, for long years, in spirit at least, in this country after the laws of the Pale were proclaimed. But a truce with all this! Benchers'-street has now fallen upon evil days, though Benchers' Hall is still the resort of lawyers and readers, and students and visitors.

"How the mighty are fallen," you can see now when you cast your eyes up and down this now seedy street, fast hastening to ruin! Several of the fine old mansions are converted into attorneys' and agents' offices. See there, 15 and 16 are let in tenements. At 14 the staff of the County Dublin Militia are housed, and at 12 that of the City Artillery; and some more of the fine old dwellings of our once resident nobility and gentry are 'To Let,' and drifting, like the tenement ones, to ruin!

"The lanes on either side of the street, which were occupied by the fine stables of the old residents, are now in the possession of car owners, serving alike for stables and dwellings. The lane on the right here as you enter the street was for awhile famous in the first year of the last decade for the head quarters of a political society known as the 'National Brotherhood of St. Patrick,' the out-houses and stables of one of the fine old mansions being utilised for a meeting-place. Here lectures, concerts, and readings were given, and violent speeches made condemnatory of 'Castle and Saxon rule,' and many of these gatherings were attended by members of the detective force. 'St. Patrick's Hall' has passed away, the 'Brotherhood' are scattered far and wide, and newer organisations now exist, determined, of course, not to give up the old land 'without another blow.' The meeting-house in the lane was afterwards for a time converted into some sort of a factory, and I believe a portion of the premises were utilised for some time for forcing mushrooms. Benchers'-lane is at present rotten ripe for the visit of our sanitary authorities; and if the legal worthies of Benchers' Hall care to prolong their lives, and do not wish to see an abrupt ending to their brief career, they ought to put the law in motion in their own behalf. There is law enough in this street yet for anything, it seems, save sanitary improvement.

"The pleasant landscape that could be once seen in the distance before the front of Benchers' Hall is almost hid from view by railway buildings and harbour stores, and part of the old flower garden and meadows extending towards the heights of Mountjoy and the immemorial Broad-stone are now covered over with brick and plaster buildings and shops. There is a very good view of Benchers' Hall drawn by the late George Petrie for the "Picture of Dublin," and included in "Wright's Historical Guide, or Ancient and Modern Dublin." This view shows a portion of the hills or mountains in the distance, some of the old buildings of the city, the canal barges, and the canal passenger boats, with their joyous living cargo on deck waving their farewells to friends. I remember those days well, but now the snorting engine yonder reminds me of how old I have grown, and, as the evening falls, how careful I ought to be of my rather delicate health. With your accustomed consideration, Mr. O'Flanagan, we will turn our faces cityward, and hope for another fine day for a fresh visit to some other hallowed spot of the Unknown City."

Agreeing to the desires of our right trusty friend, we passed homeward, and parted, at

the threshold of his residence, with the "Oldest Inhabitant."

## LARGE AND SMALL FARMS.

### SIXTH ARTICLE.

SOME of the reasons which deter private capitalists from embarking in the cultivation of large farms, and which have turned much land into pasture, are, the uncertainty of the weather and the strikes of the labouring population. As cattle do not suffer so much from the unpropitiousness of the climate as crops, and therefore the certainty of returns causes more land to be employed in grazing; when successful, the produce of cultivation is larger, and therefore there is every reason to believe that large companies will endeavour to get the highest return for their money, and the loss will not be felt so severely by a large body of shareholders. The uncertainty of obtaining fair compensation has induced many of the largest graziers to let their land to others, on which the cattle will be fed, and sometimes even the rent has been paid previous to any hoof entering upon the pasture. The old system of letting the land for agriculture, known as the con-acre, to persons very needy was often loss to the letter.

The strikes of labourers deter large capitalists from employing bodies of labourers; those who assist these labourers when out are enemies to the community, the labourers, and themselves, as most persons are consumers; and those who, under a false idea of charity, are assisting the starving wives and children, are merely supplying means to continue the contest, and are adding fuel to the flame. When they are unassisted, they in their lifetime feel that the crimes of parents are suffered by their offspring. It is the duty of everybody to set their faces against these mistaken views, and against all encouragers thereof, as labour, like water, will find its own level, and the wages are equally subject as other articles to the laws of supply and demand.

All these reasons combine to drive single individuals from investing in the cultivation of large farms. To increase the produce for the consumers ought to be the duty of every man, and should be encouraged by the State.

## THE IMPROVABLE WASTE LANDS OF IRELAND.

MR. J. G. McCarthy having brought in a Bill for the reclamation of waste lands in Ireland, we would recommend the Government either to bring in one or to support Mr. McCarthy's, referring to an article in *Blackwood's Magazine* for December, 1848, strongly urging the Government to buy, reclaim, and then sell such lands, approving of Lord John Russell's proposal to do so early in 1847, but wondering at his not carrying it out, as Parliament would willingly have voted the sum necessary to employ and keep the people at home, as the landlords, though offered loans on moderate terms, did not then or since avail themselves of them. The reviewer referred to the Bog Commission of 1814, the Poor Law Inquiry Commission of 1836, and the Devon Report—all recommending their reclamation. Among the pamphlets, he especially recommended Poulet Scrope's *The Dublin University Magazine*, in 1847, recommended the same course during the famine as one that would pay the State well, in undertaking it, adding, "in whatever way or by whatever tenure they reclaimed lands, their reclamation does appear the plainest and most obvious of all remedial measures for Ireland." It was urged on the ministry of 1837. It is impossible to read the letter of Mr. Poulet Scrope and the evidence selected by him from that taken by Lord Devon's Committee, without being convinced that in the waste lands of Ireland, of which there are about one and a-half millions of acres reclaimable for tillage and two and a-half for pasture, there is a resource to which we may

confidently look for the support of a considerable portion of the population, for whom, in the social revolution through which Ireland is passing, we must provide a subsistence and a home. We earnestly hope that measures will be introduced to reclaim and appropriate to the use of man the extensive tracts that now lie waste and unproductive within the circle of our shores. These words from this conservative magazine ought to be pondered over by Mr. Disraeli and the Chief Secretary for Ireland. No measure would be more popular, paying, and reproductive. The Dutch Government has tried it on a large scale, selling, in estates of 40 acres and over, when improved. We append a statement from Thom's Almanac of the counties where one-sixth and over of the area is waste, with the ratio and average of the waste lands in each, one-third of which are improvable:—

County	Ratio	Acres Waste
Cork ...	One-sixth ...	381,882
Donegal ...	Nearly one-half ...	505,719
Galway ...	Nearly one-third ...	426,600
Kerry ...	Nearly one-third ...	348,097
King's County ...	Over one-fourth ...	180,860
Leitrim ...	One-sixth ...	66,580
Londonderry ...	Nearly one-sixth ...	82,279
Longford ...	One-sixth ...	48,302
Mayo ...	Between one-half and one-third	576,418
Roscommon ...	Nearly one-sixth ...	97,508
Sligo ...	One-fourth ...	122,984
Tyrone ...	Over one-fourth ...	226,366
Waterford ...	Over one-fifth ...	99,520
Wicklow ...	Over one-fifth ...	112,826

The poor-law unions of Belmullet, Glenties, Clifden, and Oughterard are nearly all waste lands. K.

## THE ROYAL IRISH ACADEMY.

A GENERAL meeting of the Academy was held on Monday evening. The Very Rev. Dr. Reeves read a paper "On the frequent use of the numeral Seven by the Irish in grouping persons, churches, and other objects." Dr. Reeves said the numbers which recurred most frequently in Irish records were, 2, 3, 7, 9, and 12. The number 9 was the sacred number in Pagan Irish records, but the number disappeared from the subsequent records, and seemed to have been almost entirely superseded by the numbers 7 and 12. Our Lord's twelve Apostles, no doubt, formed the basis of that number in Irish records. Dr. Reeves then proceeded to refer to the many instances in the Bible in which the number 7 was used. One remarkable instance was that of the circumstances attending the fall of Jericho, which was surrounded seven days, and on the seventh day was gone round seven times, with seven priests blowing seven trumpets. Again, there was the reference to the seven days' Passover, the Septennial year, and the seven times seven years, the year preceding the year of Jubilee. In the Book of Revelations they had the seven Churches, the seven spirits, the seven vials, the seven thousand slain in the earthquake, and then winding up with the appointment of the seven deacons. Dr. Reeves then gave numerous interesting instances of the use of the number seven from the Brehon laws. He thought that a close connection between the social and the ecclesiastical was apparent in these records, and especially in the extensive use of the number seven, in social as well as in ecclesiastical matters. After a reference to the labours of St. Patrick, and the system upon which he appeared to act, of establishing wherever possible groups of seven churches, Dr. Reeves gave an interesting enumeration of these, distinguishing between those where the application "seven" was properly applied, and where it required a straining of the actual facts. Dr. A. S. Hart then read a paper "On the Nine-point Contact of Cubic Curves."

TRINITY COLLEGE.—The Board of Trinity College have directed the stone platforms on which the bodies of bishops, provosts, and senior fellows had been deposited under the University Chapel to be repaired. The brickwork which blocked up the two arches leading into the place of tombs has been removed. The coffins, coverings, and gildings are in perfect preservation. It is intended to place an inscription on marble containing the names of those buried in the vaults within the College Chapel.

## MICHELANGELO.\*

(Continued from page 106.)

WE now find Michelangelo, after a short visit to Florence, returned to Rome, and fully reconciled to his imperious patron. But his absence had not been without its effect. The impatient zeal of Julius had found other objects to pursue, and the mausoleum had already been half-forgotten.

Bramante had a commanding influence at court, and the rebuilding of St. Peter's was in progress under his auspices. Great works were also being carried on at the Vatican, where Raffaele was already engaged. Michelangelo thus found himself in the midst of new faces and new influences; and though restored to the Pope's favour, was conscious of a change in his position.

Julius now cared little for the mausoleum, and surprised Michelangelo by inviting him to paint in fresco the vaulted ceiling of the Sistine Chapel; so called from its having been built by Sixtus IV. It has been suggested that the Pope was instigated to offer this work to Michelangelo by the unworthy advice of those who, foreseeing a failure, hoped thereby to sow distrust between the artist and his patron. It is more unreasonable, however, to conclude that as Julius must have heard of the famous cartoon of Pisa, and of Michelangelo's readiness to execute the work in fresco at Florence, he was resolved to obtain from the artist a masterpiece, similar in kind, while greater in degree.

The fiery nature of the Pope brooked no contradiction; and although Michelangelo declared that painting was not his profession, and set about the work with unconcealed reluctance, he was forced to submit. Once resolved, he threw his whole soul into the subject; for whatever this great artist undertook, he did with all his might. When his cartoons were completed, he sought aid from Florence, to assist him in transferring his designs to the building, and one of the first who responded to his summons was Granacci, the friend of his youth.

Several other artists of the day were only too proud to work under Michelangelo, and came from Florence for the purpose; but Michelangelo soon found all assistance useless. Genius is incommunicable; he could get no efficient aid from those respectable mediocrities, and felt compelled to efface their work, and dispense with their services. His mode of doing so was characteristic. We have seen how stoutly he could maintain the honour of his profession, how bold and haughty he could be before princes. Towards his friends, however, his manner was full of consideration, and he could not muster courage to tell his coadjutors to leave him. In this difficulty he suddenly shut up the chapel and went away. His friends could find him nowhere, and, guessing what was intended, took the hint, and quietly returned to Florence.

And now Michelangelo was again at work, untrammelled and absolute. In solitude he toiled, and when at last the gigantic work was finished, he was fully entitled to the proud boast,—"Alone I did it."

Difficulties of various kinds presented themselves—difficulties with the scaffolding, difficulties with the colours, difficulties, above all, with the overbearing temper of his patron; but at length one half of the ceiling was completed, and as the impatience of Julius could no longer be curbed, the scaffolding was removed, and before the dust of its removal was dissipated, the Pope entered the chapel.

Then came the painter's triumph. Envy and detraction were silenced, and Michelangelo was revealed as a painter of the very highest rank, in addition to his allowed position as the first of sculptors. In after-life, Michelangelo often complained that his work had been hurried by the impatience of the Pope, who on one occasion had threatened

to throw the artist from the scaffold, if it were not at once removed.

Julius, however, had too great an admiration for Michelangelo for us to receive this anecdote as more than a piece of idle gossip, or pleasantry, and he was soon urging the painter to resume his work, in spite of intrigues attributed to Bramante, to induce him to entrust to Raffaele the execution of the remaining half of the ceiling. This suggestion, however, was at once repelled, and Michelangelo proceeded forthwith to complete his work with such energy that the whole is said to have been finished in the incredibly short period of twenty months.

The chapel was thrown open to the public on All Saints' Day (November 1st), 1512, by a service at which the Pope himself attended.

Thus was completed this wonderful achievement, which more than all else has rendered glorious the name of Michelangelo with undying fame. We see in it the genius of the artist in its highest perfection. Criticism has of course much to say about it, especially with regard to the freedom of treatment of the nude human form. Having regard to the awful character of the subjects, it may be doubted whether it is given to mortals adequately to delineate such dread realities. With this reservation, however, few I think can stand in the Sistine Chapel and view the paintings of Michelangelo unmoved, and without feeling that those awful themes of the Creation, the Fall, the Redemption, and the Judgment of Man, are there delineated with a grandeur of design, and sublimity of conception, without a parallel. No wonder if the enthusiastic admirers of the artist have bestowed on their beloved countryman, the title of "il Divino."

We have seen that Michelangelo deemed himself a sculptor, rather than a painter; but by this mighty work he has associated his name with the art of the latter, rather than with the former, and it is perhaps from his work in the Sistine Chapel that his fame as an artist will be chiefly estimated.

If he had any lingering dissatisfaction with the Pope, all coolness seems to have been now at an end. We may suppose that each had learned to respect the other. The character of Julius, headstrong though it was, did not want a certain imperial grace and dignity, and he appreciated fully the moral courage and honesty of purpose which were ever displayed by Michelangelo. Few dared to speak to him with the freedom habitual with the latter, and towards the close of his life, he relied more and more on Michelangelo as on a faithful friend.

One instance of successful remonstrance is recorded. The Pope wished Michelangelo, after the work was completed, to retouch it with gold so as to give greater distinction to the saints delineated. This Michelangelo was unwilling to do. "Holy Father," said he, "the sainted characters there shown were poor men, they were no gold." "Without gold," said the Pope, "the work will look poor." "They were not only poor men," the artist rejoined, "they were also saints who despised riches." The point was not further pressed by Julius, and no additions were made.

Relieved from the pressure which the Sistine Chapel had put upon him, Michelangelo now turned his thoughts again to the mausoleum, which was to be proceeded with on a reduced scale. But everything was soon thrown into confusion by the death of Julius, in February, 1513.

The new Pope was Leo X., whose Pontificate will ever be memorable for that sale of indulgences which seemed to give the chief impetus to the Reformation. Leo himself seems to have been an easy, careless man, very different in character from his predecessor.

We are principally concerned here with his treatment of Michelangelo, and it was by him that the skill of the latter as an architect was now to be demonstrated. A member of the Medici family, his thoughts naturally reverted to Florence, and he wished to signalise his

reign by some conspicuous work in his native city. He found such a work in the completion of the façade of San Lorenzo, which contained the remains of many of his family. He therefore invited Michelangelo to prepare a design for a marble façade, and, Vasari tells us, applied also to Raffaele, Sansovino, and Giuliano San Gallo. The result was a commission to Michelangelo to carry out his design, which he was unwilling to do, as he wished to be left undisturbed at Rome to finish the mausoleum of his old friend Pope Julius.

Leo was resolute, however, and insisted on obedience; Michelangelo was, therefore, obliged to submit, and prepared to return to Florence. He was compelled to go to Carrara to superintend personally the quarrying of the marble, and after much waste of precious time, some of the details of the façade arrived in Florence. The work, however, was never completed, and was abandoned before the death of Leo X., in 1521.

Michelangelo was so discontented with the treatment he had received, that for a time he would touch nothing in his work. But Cardinal Medici, who now ruled Florence, appreciated his genius, and ultimately induced him to undertake the addition of a chapel instead of a façade to the church of San Lorenzo. This chapel was to contain tombs of Lorenzo and Giuliano de Medici. Michelangelo soon produced a design, which was at once accepted, and, as all visitors to Florence are aware, has been carried into effect.

The seated statues of Lorenzo and Giuliano must be reckoned among the sculptor's finest works, and the allegorical figures of Day and Night, Aurora and Twilight, introduced a fashion of allegory in monuments which soon spread over the whole of Europe. It is for sculptors to point out the wonderful skill and the anatomical knowledge exhibited by these works of Michelangelo's genius, which has mastered the difficulties of place and material; but all can recognise the beauty of the forms, the dignity and the power which are here displayed.

Unfortunately, the chapel was never finished, for in 1534, before its completion, Michelangelo had left Florence for ever. Had the work been fully achieved in accordance with the views of Michelangelo, it would have exemplified the truth on which he ever insisted,—that architecture, painting, and sculpture must not be looked upon as rivals, but can only be fully appreciated where they are employed in combination, each supplying an essential ingredient to the perfection of the whole.

But before the partial completion of the sacristy of San Lorenzo, important events had occurred which not only interrupted the artistic work of Michelangelo, but exhibit him to us as one of the leading men in Florence, socially and politically, and make us regard him more than ever as a "King of Men."

The premature death of Raffaele, in 1520, was soon followed by that of his patron, Leo X., who was succeeded in the papal chair by Adrian VI. The new Pope had a short reign of eighteen months, and was succeeded by the Cardinal Medici, then ruling at Florence, who took the name of Clement VII.

Pressing forward as Pope the design he had commenced as Cardinal, he urged Michelangelo to proceed with the work at San Lorenzo, without reference to his engagements respecting the still unfinished mausoleum of Julius.

There had been many difficulties, pecuniary and otherwise, with the latter work, and at Clement's suggestion these were now determined by a scrutiny of accounts, which proved that Michelangelo's conduct throughout had been worthy of his reputation, and that a large sum of money was due to him from the executors of Julius.

An arrangement was now made, in virtue of which Michelangelo was at liberty to proceed with the Medici statues, as so strongly desired by the Pope. He thereupon fixed himself at Florence, and was quietly working there when all Italy and Europe were startled

\* Professor E. M. Barry's second lecture at Royal Academy, March 1st.

by the sack of Rome, in 1527, by the Constable de Bourbon. Ruin, massacre, and pillage ravaged the streets, and Clement was only saved by flight to his Castle of St. Angelo. On the news reaching Florence, the party opposed to the Medici saw their opportunity, and proclaimed a republic.

Clement having been accustomed to look upon Florence as belonging to his family, took great umbrage at its defection, and when he was able to make his peace with his enemies, stipulated for the restoration of the Medici as the rightful lords of Florence.

This meant war with Florence, and in the emergency the citizens turned to Michelangelo. Their defences were neglected and weak, and he was asked to accept the office of Commissary General of the Fortifications. He had no affection for the Pope: he loved the liberties of his native town: the Medici of the day were only nominally the descendants of his former patron, Lorenzo: he therefore accepted the distinction thrust upon him, and soon made his influence apparent.

He devised new works at San Miniato, and visited Ferrara to study its fortifications, which had a great reputation. His energy and activity inspired the citizens with confidence, but on finding that Malatesta Baglioni, a Condottiero captain, was supported by the signory, in spite of his avowed suspicions of treachery, Michelangelo left Florence in disgust, and went to Venice, where he was treated with honour and distinction.

In the meantime, the rulers of Florence had discovered their mistake, and on his receiving from them expressions of apology and regret, coupled with pressing requests for his return, he left Venice, and once more arrived in Florence, where he was joyfully received by the citizens. His suspicions of Malatesta Baglioni were soon justified, for by this man's treacherous conduct the Imperial and Papal troops were admitted within the walls on August 12th, 1580, and the siege of Florence was at an end.

Michelangelo was excepted from the general amnesty which was granted by Clement, and he was obliged to hide for his life. The Pope had no wish, however, to lose his inestimable services at San Lorenzo, and a special order was consequently soon issued that his pardon might be relied on, if he would come forth and resume his labours.

At this time, gloom and melancholy oppressed the soul of Michelangelo. He worked incessantly. His health was bad, and his undaunted spirit broken. He was between fifty and sixty. Age was advancing, and his friends feared he was working himself to death.

Public affairs were in confusion, the liberties of Florence were a thing of the past, and the present ruler, Alessandro de' Medici, brother of the Pope, made no secret of his dislike of Michelangelo. It was under these discouragements that the great artist worked, — a lesson not, perhaps, to be lost on some of us. He had to visit Rome occasionally, but the Pope would not hear of any intermission of his labours at Florence.

It was thus that the weary artist found his task irksome, and progressed with a heavy heart. At length, in September, 1533, Pope Clement died. Michelangelo at once discontinued the work, and in the following year left Florence, never to return to it alive.

The new Pope, Paul III., eagerly sought the services of Michelangelo, and begged him to proceed with the painting of the "Last Judgment" in the Sistine Chapel, which had been ordered by Clement shortly before his death. With this view, a new agreement was entered into with the Duke of Urbino, as the surviving executor of Pope Julius, with reference to the mausoleum of the latter. The design was now still further reduced to the state in which we now see it in the Church of San Pietro in Vinculi.

While the negotiations were in progress, Michelangelo received a friendly visit from the Pope in his studio, and the latter completely reconciled the artist to the proposed changes by his kindness and compliments.

On seeing the "Moses," the Pope exclaimed, "Surely this one statue would suffice to immortalise Pope Julius."

Michelangelo now addressed himself to the vast painting of the "Last Judgment," which had been commenced in 1533. It was finished in 1541, in the sixty-eighth year of the great artist's age.

He subsequently painted the Pauline Chapel, at the pressing solicitation of the Pope, who had called the chapel after his own name. Those only who are acquainted with the labour of fresco-painting on a great scale can appreciate the physical difficulties of such a task; Michelangelo was upwards of seventy-five years old when this latter work was finished, and it is believed to be the last production of his pencil.

We have thus traced the life of Michelangelo to the commencement of the infirmities of old age. His busy, honourable, and arduous life appeared to be near its close; but before this great man was to be lost to the world, he was destined to establish yet further claims on its gratitude. As painter and sculptor he had left imperishable records of his genius. He was now to connect his name with the great monument of modern Rome, for at the end of 1546 he was appointed architect of St. Peter's. At this point let us now leave him, strong in the favour of the Pope, unblemished in character, in the full enjoyment of artistic power, even if bodily enfeebled.

We shall hereafter have to return to him in my next lecture, as an architect, and may then trace the circumstances of his remaining years. We shall find in his architecture the same boldness and power which have marked all his productions. In the meantime you may do worse than ponder over the lessons of devotion to art, industry, high purpose, and integrity, which may be learned from the life of "the divine" Michelangelo.

#### THE ORCHESTRION.

THIS instrument has been specially brought to this country from the Crystal Palace, London, by Professor Glover, for use at his several concerts. Its noticeable features are the possession of the diapason tone, in all its fullness, in addition to the reedy tone of the swell; while on the great organ we have the combination, on the other hand, of powerful reeds and mixture stops, which render it one of the most powerful instruments of its kind. The pedals have upwards of two octaves, diapason 16 ft. tone, acting by the medium of couplers on 8 ft. as well as 16 ft., while the two benches of keys with which the instrument is furnished enables the performer to avail himself of the varieties of tone pertaining to the register. The case is of polished oak, in the Classic style. The instrument will be used for the first time in Ireland at the concert to be given on the anniversary of Moore's birth this month.

OLYMPUS.

#### THE CITY LIGHTING, AND ITS COST.

To the Chairman of the Alliance and Dublin Consumers' Gas Company.

SIR,—In the report of the meeting of the Alliance and Dublin Consumers' Gas Company, in the *Daily Express* of the 1st inst., I have read with surprise some of the statements in your address to the shareholders. Not having read any contradiction from you to that report, I adopt those statements as yours, avail myself of the permission given at the conclusion of your remarks, and respectfully address this letter to you.

Whether the Gas Company is viewed as a municipal or mercantile corporation, I believe that for some time past its public character for honest dealings closely resembles the coffin of Mahomet, hanging somewhere, difficult to find, between heaven and earth.

You expressed an opinion that the directors had done justice to the community; that "they had kept up the pressure required by their Act, so that their customers had not much reason, if any, to complain." That you "had looked over some large accounts for the year 1871, and had found

that the increase was not more than the actual 10d. per 1,000 cubic ft.," which consumers are paying now, in excess of what they paid in that year.

The pressure has for some time past ranged from 2 to 3 inches, and I respectfully ask you to name the section of the Act requiring such pressure. Are you aware that the using of an undesirable pressure (about 16-tenths) is one of the causes of dispute between the Liverpool Corporation and the Gas Company? That Mr. Fowles in his report, published in April last, recommended that the pressure might be raised to 10-tenths, and that no person on reading that report could for a moment think that he ever contemplated a pressure ranging from 24 to 30-tenths, such as the pockets of the gas consumers of Dublin have lately been afflicted with.

Is it not chiefly to such undesirable pressure that the Gas Company is indebted for the *largest* amount of receipts they ever had—for their profit on the half year of £23,000, and not to their honest earnings on the bulk of inflammable fluid that the consumers' meters were supposed to have indicated as having passed through them?

Though I admire the cavalier manner in which you disposed of the consumers' complaints (and their name is legion), I must, however, inform you what my experience of the matter is. In 1870, when the pressure was but 8-tenths, the 16 candle gas gave satisfaction. Nearly double the bulk of the fluid now called gas appears to be requisite in giving the same amount of artificial light, and its cost has been for the quarter ending December, 1874, double what it was in the corresponding quarter of 1870. Your own bills will assist me in proving this. I have published it, and enclose a copy of the letter.\*

Allow me now to call your attention to the largest account you have—that of the city lighting. The report of the Corporation expenditure shows that the total cost of the gas charged to the city lamps during the year ending August, 1871, was £6,235 15s.

The report from the Public Lighting Department, published March 29th, shows that the cost of the gas charged to the public lamps for the one quarter ending January 5th, 1875, amounted to £2,614 9s. 6d.—nearly one-half of the sum charged for the whole year ending August, 1871, the price during both periods being 3s. 11d. per 1,000. This report also points out that the cost of the gas for the public lighting for the corresponding quarter in the previous year was £490 18s. less. When you remember that the price of the gas supplied to the public lights during that period was 4s. 8d. per 1,000, you must see that the extra charge for the gas *said* to have been consumed in the quarter ending January 5th, 1875, must have been much more than that sum. I have made a calculation of this, and I find that if the same bulk of gas only was charged for in the quarter ending January 5th, 1875, as was charged for in the quarter ending January, 1874, the cost of it at 3s. 11d. per 1,000 would have been about £1,782 6s., therefore the actual overcharge to the ratepayers for that quarter is about £832 3s. 6d., representing nearly four and a-quarter millions cubic feet of gas, of the actual consumption of which I have grave doubts. I have further to remind you that the public lighting was frequently sneered at in the columns of our daily Press during the latter half of the past year, and on two occasions her Majesty's judges spoke of it scornfully from the judicial Bench.

The report from the Public Lighting Department accounts for this increase of £490 18s. by a statement that it "is due wholly to the increased consumption of gas in each lamp."

That statement I believe to be erroneous. About ten months ago I observed that from every metered lamp a more powerful light was emitted than what was given out from any of their nine dependant lamps, and that a greater bulk of gas was being consumed in the metered lamps than was consumed in any of the others.

I closely watched this for some time, accompanied on each occasion by one or another of the ratepayers with whom I am acquainted. Through the columns of the public journals I exposed it, and I enclose a copy of one of my letters on the subject.†

At the close of November I found that in all the back streets, courts, lanes, and alleys the same unequal lighting still existed, and that there was no good light to be found among them except that which was emitted from a metered lamp. I wrote first to the Commissioner of Police, directing his attention to the matter, and afterwards to the Lord Mayor, enclosing a copy of that letter. They were published in two of our newspapers, and I enclose copies to you.‡

\* See IRISH BUILDER, March 1st, 1875.  
† " " " September 1st, 1874.  
‡ " " " December 1st, 1874.  
§ " " " April 1st, 1875.

It was not, I believe, until the beginning of January that all the public lights were equalised, and on reading the report from the Public Lighting Department I wrote the enclosed letter, exposing the fraud, and the Corporation connivance of it. May I now ask has justice been done to the community, or to the ratepayers who are not shareholders in the Gas Company?

I must notice one passage which appears in the mutual admiration episode which was performed after the well-merited vote of thanks to yourself—namely, "They were well watched by the Corporation officer." The idea is simply ridiculous, and the ignorance and mendacity which prompted the utterance of it in the face of my published and still uncontradicted letters is most audacious.—I have the honour to be, sir, your most obedient servant,  
JAMES KIMBY.

41 Coffe-street, 24th April, 1875.

### ECONOMY IN GAS-BURNING.

At the last evening scientific meeting of the Royal Dublin Society a paper was read by Thomas Grubb, Esq., F.R.S., on "The Un-economical State both as regards the Supply and Burning of Gas for Lighting Purposes in our Dwellings, and the means of Improvement therein." The author referred to the extraordinary fluctuations in pressure at which the gas had been for some time supplied in Rathmines Township, viz., from one inch to upwards of three inches (water pressure) daily, thereby involving proportionate loss to the company by reason of leakage, while both waste and annoyance are experienced by consumers in endeavouring to regulate their burners (under such variations of pressure) by continual alterations of their stop-cocks. Reference was also made to the worthlessness of the present official testing of the gas under the imposed restriction of two hours' notice being required previous to each and every testing.

The second part of the paper was devoted to explaining the advantages to be derived, both in respect of economy and comfort, by the application of an efficient regulator, which, acting automatically and consequently not requiring attention after the first adjustment, affords an even and suitable (and therefore economic) pressure at the burners, independently of the variable pressure from the main. These advantages include either a much better light without increased consumption, or equal light with a saving of 15 to 20 per cent. of gas. The light, being uninfluenced by variations of pressure in the main, is subject only to that variation due to difference in the quality of the gas, to which may be added a more perfect combustion and consequently a less vitiated atmosphere in our apartments.

Two automatic regulators were exhibited in illustration of the paper, and their mechanism explained. One of them had been constructed more for the purpose of experimental research than for general use; the other was a regulator lately introduced, and as yet but little known. It had been favourably spoken of, both as regards its effectiveness and moderate cost, by several of the members then present.

It appears that regulators are now being very generally adopted; and if the statement be correct that a consumer's outlay for a regulator will be recouped in six months by the saving of gas effected through its use, the invention is sure to be received with public favour, particularly in this city, where the supply of gas has been for a long time anything but satisfactory. The regulators are made in various sizes, to suit the number of lights in a house.

### THE BELFAST ARCHITECTURAL ASSOCIATION

THE closing meeting of this association for the session was held on Monday evening, in the Museum, College Square North. Around the room were displayed a number of drawings, photographs, &c. A fine collection of water-colour drawings was exhibited by Dr. James Moore, notably among which

was a fine view of the entrance to Carrickfergus Jail. Photographs of buildings and landscapes in Spain, Italy, and Portugal were arranged at one side of the room; they were kindly lent by Mr. George MacLaine, Mr. William Ball, Jun., and Mr. Young. A collection of photographs of Venetian palaces was exhibited by Sir Charles Lanyon. Mr. Lindsey, head master of the School of Art, had on view a collection of drawings. There were also suspended around the walls drawings of various public buildings in and around Belfast. At the head of the room was prominently displayed a drawing giving an effective bird's-eye view of Connswater estate, the property of James Alexander Henderson, Esq., J.P., as it is being laid out. There were also designs for buildings on the east side of Lombard-street (T. Jackson, architect); new St. Patrick's Church, Donegal-street (T. Hevey, architect); the new Catholic Hall, Bank-street (Alexander M'Alister, architect); Reformed Presbyterian Church, Botanic-avenue; the Ladies' Collegiate School, Upper Crescent, &c. Sketches, showing proposed additions to the Drew Memorial Church, Grosvenor-street, were exhibited by Mr. Batt. At the entrance to the room were two interesting sketches of old Belfast, lent by Mr. Wm. Hastings. Mr. Wm. H. Patterson also showed a series of engravings. There was also an invaluable collection of measured and sketch drawings by Mr. J. J. Phillips, comprising—Inch Abbey, Grey Abbey, Whitechurch, the Benedictine Abbey (Downpatrick), Dundrum Castle, Jordan's Castle, and an extensive series of archaeological scraps collected in the County Down by this indefatigable member of the association.

Sir Charles Lanyon having been moved to the chair,

Mr. R. M. Young (hon. sec.) read the following report:—

The committee of the Belfast Architectural Association have the honour to report that during the session now closing eleven evening meetings have been held, which were numerous attended, and have not been unsuccessful in interesting both the members and the general public. At six of these meetings papers were read as follows:—Nov. 9, Opening Address, "Architectural Style," by Mr. J. W. Lockwood; Dec. 7, "A History of Painting to the End of the 18th Century," by Mr. T. M. Lindsay; Jan. 18, "The Architectural Remains of the Cistercians in County Down," by Mr. J. J. Phillips; Feb. 15, "The Aesthetic Principle in Architecture," by Dr. MacIlwaine; March 15, "Four Years in Chicago," by Mr. James Kendall; April 12, "Elizabethan Architecture," by Mr. R. Watt. On the other evenings of meeting the association formed a class of design, at which thirty-four sketches were exhibited. The committee only regret that more of them were not returned for competition. In addition to these sketches two papers, one on "The Coloured Decoration of Churches," by Mr. J. J. Phillips, the other on "Flues and Chimneys for Steam Boilers," by Mr. W. T. Gilliland, were also submitted. It is very satisfactory that the attendance on this class by the younger members of the profession, exhibits a marked increase on that of last year, and that the discussion of the designs by those members present seem productive of benefit. At the commencement of the session the scheme for prizes was modified and extended considerably from that of last year. The result of the competition will be seen from a report by three gentlemen—Messrs. John O'Neill, Thomas Turner, and Thomas M. Lindsay, who most kindly consented to adjudicate the prizes. The thanks of this association are due to those practising architects who have contributed, not only largely to its funds, but also mainly to its success by the interest they have always taken in its proceedings. The committee also beg to tender their best thanks to the honorary members who have delivered lectures and presided on various occasions during the present session, and also to the late Mayor of Belfast (James Alexander Henderson, Esq.), for his kindness in presiding on one occasion.

The Hon. Secretary also read the report of the examiners:—

After a careful examination of the works submitted in competition, we unanimously make the following awards:—

Class I.—For the best copy of a good architectural drawing, eight works competing—1st prize, £2 2s. Thomas M'C. Johnston; 2nd prize, £1 1s. Thomas Duff, Hotel de Ville; 3rd prize, 10s. 6d., R. J. D. Clarke.

Class II.—For the best series of sketches exhibited at the evening meetings for design—1st prize, £2 2s., J. W. Lockwood; second prize, £1 1s., Thomas M'C. Johnston; highly commended, Wm. J. Gilliland.

Class III.—For the best architectural drawing or design at the winter exhibition of the Government School of Art, twelve works competing—Prize, £1 1s., R. J. D. Clarke (design for wrought iron grille).

Class IV.—For the best set of measured drawings of a building, twelve works—1st prize, £2 2s., James J. Phillips.

Class V.—For the best sketch drawing of any building, different from last year—1st prize, £2 2s., James J. Phillips (Inch Abbey); 2nd prize, £1 1s., Thomas M'C. Johnston (Jordanstown Church).

Class VI.—For a design in colour, 1 work—Prize, £1 1s., J. W. Lockwood (design of shop front).

Class VII.—For the best drawing, not otherwise premiated—Prize, 10s. 6d., J. W. Lockwood (pen-and-ink sketch of Tour St. Romaine, Rouen).

Class VIII.—For the best paper submitted during the session at the evening classes for design, two competitors—1st prize, £2 2s., W. J. Gilliland.

It is gratifying to notice such a highly creditable show of works, many of them being of real artistic excellence. We refer particularly to the design for a wrought iron grille, by R. J. D. Clarke, in class 3; the capital set of measured drawings by James J. Phillips, in class 4, and the beautiful series of original sketches, or rather pictures, submitted by James J. Phillips and J. W. Lockwood, in class 5. It is worthy of remark that the whole of the prizemen have been students of the Government Schools of Art.

In concluding this report, we would beg to suggest that in future medals, books, instruments, &c., might be substituted for money prizes, as being more permanently valuable.

(Signed)

THOMAS TURNER.

JOHN O'NEILL.

THOMAS M. LINDSAY.

The Chairman then proceeded to distribute the prizes, after which,

Mr. Lockwood moved a resolution thanking the three gentlemen, Messrs. J. O'Neill, James Turner, and James M. Lindsay, for having so kindly acted as judges, and for the trouble they had taken in examining and adjudicating upon the various drawings. The junior members of the association not only felt indebted to those gentlemen and to the other senior members of the association for the kindness they had bestowed upon them, but they also felt that it would be impossible for this association to go on flourishing unless such kindness was extended. The association had now got through some two or three years with some difficulty, but some of them considered that they had made considerable progress. When they looked round that room and saw the walls hung with works of art, many of them evidencing much care and taste, and when they saw so many of the public present, it showed that not only did the profession take an interest in the association, but that a similar feeling actuated the public generally.

Mr. McKenzie seconded the motion, which was passed unanimously.

Mr. Alex. Tate having been called to the second chair,

Dr. James Moore moved that the best thanks of the meeting be given to Sir Charles Lanyon for his kindness in presiding. It was to him a matter of great delight to see Sir Charles preside on that occasion. He had watched the society since its commencement, and he was delighted to see it making great progress. He now looked upon it as one of the institutions of Belfast.

Mr. MacAlister seconded the motion, and in doing so said that the thanks of the meeting were not only due to Sir Charles Lanyon for his kindness in presiding, but for the great interest he had taken in the association since its commencement.

Sir Charles Lanyon, in returning thanks, said—It has again given me very great pleasure to preside at your annual meeting, and again to meet those younger members of the profession who are now preparing for the battle of life in that profession of which I was so long a practical member, and upon which I still look with much interest. This meeting recalls many an association connected with my younger days, and the ardour and anxieties connected with the pursuit of knowledge in one of the most pleasing professions or businesses that any young man can follow. I must congratulate your association on the improvement which I observe in the exhibition of drawings hung around these walls. They decidedly show that this association has been successful in stimulating the taste and genius of many of its young members; and I wish, and sincerely hope that this year's success may tend not only to stimulate those who have carried away the prizes in this competition, but that it may lead those who have been unsuccessful to an honourable determination to vie with their fellow students in the future. To this latter class I would say, do not be disheartened. Remember the advice I took the liberty of giving you last year—not in my own words, but in those of a great master of his art, viz.:—"That a great part of a man's life must be spent in collecting materials for the exercise of genius; that nothing can come of nothing; and that he who has laid up no materials can produce no combinations." I fully concur in the observations made in the report of the examiners—"that it is gratifying to notice such a highly creditable show of works, many of them being of real artistic excellence;" and I also concur in the remarks made by them on some of the drawings specially referred to. If I might, however, venture to make an observation on any want there may be in the class of work exhibited, I must say that I should have been better pleased to have seen more sketches from ruins of buildings of well-known character, such as those contributed by Mr. J. J. Phillips. These form the materials to which I before referred, which students should be constantly collecting, from which to produce combinations in design.



## WHO CLEANS THE LIFFEY?

P.H.C. v. P.D.B.

THE City Fathers have resolved that a letter, dated 16th ult., from the Port and Docks Board in re the cleansing of the Liffey, be referred to the Public Health Committee, with directions to take immediate proceedings against the Board in case of neglect to abate a nuisance on "their premises"! The Lord Mayor informed the Council that "in a few weeks they should have a large number of strangers visiting their city for shooting matches and other purposes, and it would not be becoming in them to allow matters to remain in this state." It is rumoured that the L.C.J. will not sit in Q.B. during the summer months, unless poor "Anna's" bed is swept and purified! The P.H.C. met on Wednesday, and, after a lengthened discussion on the very odorous topic, passed the following resolution without a dissentient voice:—"Notice, as approved, to be served forthwith, and copy kept for proof, in case summons shall become necessary." Patient citizens! you must await the result calmly.—"When things come to the worst they are sure to mend."

## SANITARY AND OTHER NOTES.

SANITARY matters in Dublin remain in the same unpromising state as ever. The back streets and lanes in many parts of the city, north and south, are in a filthy condition. In a month or two the white heat of the Liffey nuisance will be reached, and the City Hall and the daily Press will be all ablaze with the momentous question. There will be some lime-splashing and scraping of the fore-shores of the river to abate the nuisance and appease offended public opinion, and then the question will settle down into its usual sink of iniquity. To sum up, our streets are dirty, our river filthy and poisonous, our pathways and roadways are obstructed, adulterations still go unpunished, and our Corporation are as neglectful and as incompetent as ever. The Main Drainage Scheme is still on the boards, and the promoters hope to pass their amended bill and raise their needful loan.

BELFAST.—At Belfast a number of house agents and landlords of houses were summoned at the instance of the Mayor, Aldermen, and Burgesses, for neglecting to comply with notices served on them requiring them to have offensive matter removed out of yards, stagnant water taken away, drains cleared, &c., and also to have houses in which there had been contagious disease whitewashed. Mr. McLean, jun., who prosecuted, said that in the majority of the cases on the books the work required had been done, and in the others the defendants had promised to have the work done in a few days. The only object the Sanitary Committee had in view was to have these necessary sanitary arrangements carried out. In the cases where the work had been done, they might be struck out, and in the others he applied to have them adjourned for a week to give the defendants an opportunity of doing what was required. Mr. Orme said it was very necessary, particularly at this season of the year, when the warm weather was coming upon them, to have these sanitary matters attended to.

KILKENNY.—At a sanitary meeting of the Corporation, the question of providing new sewers was considered, and reports were read from the sanitary officer, drawing attention to nuisance in the town caused by swine manure and other foul accumulations in proximity to a pump well, whose waters were used for domestic purposes. Several houses and yards were also reported to be in an unsanitary condition, and orders were given to abate the nuisances complained of.

NEWRY.—A local paper, in alluding to the purification of rivers, and to the position of the river of that town, strongly advocates the planting of trees throughout the town at certain places. It believes, with Dr. Lyon Playfair, that a healthy vegetation in the centre of our towns helps to purify their atmospheres, and to pour into them life-giving oxygen. We are glad to see Newry waking up.

DROGHEDA.—At a meeting of the Boyne Commissioners, the Harbour Engineer submitted a report in reference to the state of the harbour and bar, and the impediments to navigation. In concluding his report he says—"The river discharges into an extensive bay of sand resembling a crescent in shape, the southern horn of which is formed by the Rock-o'-Bill and the Skerry Islands, and the northern horn by the sea end of the Mourne Mountains. Outside these headlands is the channel

through which flows and ebbs the great 'tidal current' of the ocean, and inside sets the rising tide along the shore, carrying with it sand and other matter, with which for ages it has filled the enclosed area. From time to time the action of the sea sends in vast quantities of this material along the coast, and the mouth of the river is no exception. The breakwaters to be effective must extend across the bay until their free ends come in line with the outside of these headlands. The enclosure will then form a vast 'harbour of refuge,' which in a few years after its completion would amply compensate for its expense in construction in the vast amount of valuable lives and the millions' worth of valuable property it would be the means of saving to the shipping interest of the three kingdoms."

## CIVIC LYRICS.—No. LXXXIV.

## WE SAT UPON THE LIFFEY.

We sat upon the Liffey,  
And we fished upon the Bank,  
And we hooked a very Tartar,  
Whose smell was rotten rank.  
We thought to cleanse this Tartar,  
But we could not do it quite,  
Still we hope, by constant brushing,  
That we'll make this Blackmoor white.

We sat upon the Liffey,  
Where we sat for thirty years,  
With hearts athirst on Jobbing,  
And a tinkling in our ears.  
Sweet sounds of ready money  
We oft heard, and hear again;  
But we're *misus* what we've wanted  
For the constant drop and drain!

We sat upon the Liffey,  
As a Crowner's jury sit,  
And all who heard our verdict  
Know we've made the most of it!  
The river's still a nuisance  
We admit, and fully blown;  
But to better serve the city,  
We've made its cause our own.

We sat upon the Liffey,  
And there we're sitting still,  
Ever hoping, ever crouping—  
Doing nothing if you will;  
But the eleventh Commandment  
Is the guide we've acted on,  
Oh! it suits our model drainage.  
For it says, mind "Number One!"

CIVIS.

## PRESERVATION OF NATIONAL MONUMENTS.

THE preservation of National Monuments Bill, the second reading of which was carried on the 14th ult., will, we hope, be eventually passed, and its scope enlarged. Sir John Lubbock is entitled to every praise for his renewed efforts, and the Government have expressed their willingness to confer with the introducer of the Bill on the best means of achieving the object sought. We trust that if the Government do not make the Bill their own, they will, at least, give no further opposition to its passing into law. In the schedule annexed to the Bill, twenty-nine monuments in England and Wales, twenty-one in Scotland, and twenty-two in Ireland, are detailed. The greater number of remains in Ireland comprise earthworks. Besides the monuments contemplated in the measure, the Act may apply to certain British, Celtic, Roman, and Saxon remains, if, in the judgment of the commissioners appointed, they come under the denomination of those described in the Bill. The measure can be considerably improved, and we hope it will, so as to include some of the finest architectural remains in existence.

We will reserve what further remarks we would be inclined to offer, concerning the details and operations of the Bill until we see how it is likely to fare in Government attention. We could have wished that the mind of the country was ripe for such a measure at the commencement of the present century. Had such a measure been passed half a century since, many valuable national monuments would have been saved from vandal destruction.

## HOME AND FOREIGN NOTES.

BEGGAR'S BUSH BARRACKS.—In a late issue of the *Sanitary Record*, a special report was published from a correspondent descriptive of the hygienic arrangements provided for the occupants of these barracks, and descriptive of their sanitary condition. We are glad to hear now, that certain improvements have just been completed with a view

to prevent the recurrence of the evils complained of. But might not the query be put long since in reference to the neglect at Beggar's Bush?—Where are our Board of Works officers, and what have they been doing?

A WARNING TO GAS COMPANIES.—The Waterford Gas Company was summoned before the magistrates at petty sessions, under the following circumstances. It appears that one of the clauses of the Waterford Company's Act provides that the company should, under a penalty of £20, furnish the Clerk of the Peace for Waterford with an annual statement of the company's receipts and expenditure annually, and that if the profits were over ten per cent. dividend, the surplus was to go to the reduction of the price of gas to the consumers, and that if the company failed to lodge their accounts annually they should be subjected to a fine of £20 for such omission. The Corporation in court alleged that the company had not complied with the provisions of the Act, and asked the bench to impose the full penalty. Mr. Thornton, solicitor, who appeared for the gas company, admitted that through the illness of the secretary of the company the accounts had not been lodged as directed by the Act. The bench held that there was no alternative but to fine the defendants the amount which was due, £20.

A citizen of Washington is having manufactured in San Francisco a floor, thirty-two feet long and eighteen feet wide, composed of different coloured and dyed woods, dovetailed together so as to form a representation of the coat of arms of California. The motto "Eureka" is also traced in the woods. From the central piece radiate stripes which form a star. Then occur alternate stripes of white, black, green, and red wood, arranged with such artistic nicety that the colours blend as in a painting. The woods were procured from Pacific Coast timber trees.

LIME-WASH FOR OUTSIDE WORK.—The following receipt for making lime-wash appears in the columns of a contemporary. Take half a bushel of freshly-burned lime, slake it with boiling water; cover it during the process to keep in the steam. Strain the liquid through a fine sieve, and add to it 7 lbs. of salt, previously well dissolved in warm water; 3 lbs. of ground rice, boiled to a thin paste, and stirred in boiling hot;  $\frac{1}{2}$  lb. of powdered Spanish whiting, and 1 lb. of clean glue, which has been previously dissolved by soaking it well, and then hanging it over a slow fire in a small kettle within a large one filled with water. Add five gallons of hot water to the mixture, stir it well, and let it stand a few days covered from dirt. It must be put on quite hot. For this purpose it can be kept in a kettle on a portable furnace. About a pint of this mixture will cover a square yard.

## TO CORRESPONDENTS.

APOLOGIA.—Owing to the indisposition of the editor for some days back, papers and correspondence intended for this issue are held over. Correspondents and others will please to accept this in explanation of any inattention to their wants.

## IMPORTANT TO HEALTH OFFICERS OF EVERY CLASS.

FOR the working of the Public Health (Ireland) Act, see the *SANITARY RECORD*, No. 42, price 4d., which contains also articles of special interest on—Our National Water Supply; Scavenging in Ireland; The Beggar's Bush Barracks; Special Rain-pipes for Sewer Ventilation; Local Government Board (Ireland); The Sanitary Act; Manual of Public Health, Ireland; Observations on Public Health; Parliamentary Intelligence; Law Reports and Legal Queries; Notes of the Week; Correspondence; Sanitary Appointments; Vacancies and Patents; Notes, Queries, and Replies, and other important Sanitary News of the week.

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## NOTICE.

*It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.*

*We shall be glad to receive from any of our readers notes of works in contemplation or in progress.*

*Correspondents should send their names and addresses, not necessarily for publication.*

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**MESSRS. EARLEY AND POWELLS** beg to announce that **Messrs. John Hardman and Co.,** of No. 1, Upper Camden-street, have resigned the business of Artists, Sculptors, Church Painters, and Metal Workers, in their favour.

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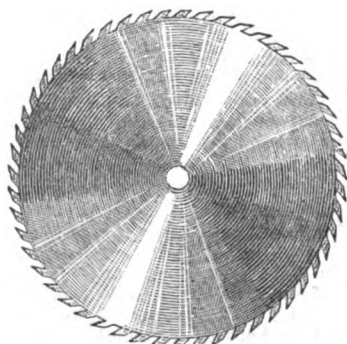
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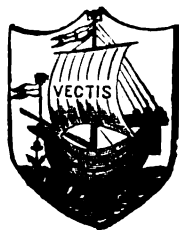
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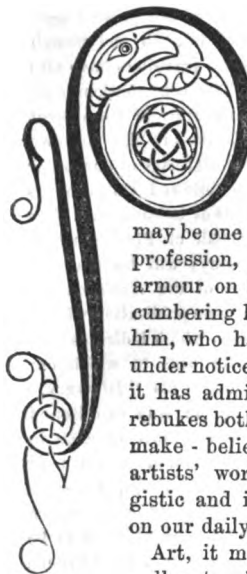
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# The Irish Builder.

VOL. XVII.—No. 370.

Art in Ireland, 1875.\*



POSSIBLY it may be a cleric with artistic tastes, or it may be an architect or artist with Scotch tendencies, or otherwise it may be one whom we know, whose profession, like Saul's plate or armour on the shepherd's boy, encumbering him though not arming him, who has written the brochure under notice. Whoever has written it has administered some deserved rebukes both to Dublin artists, their make-believe patrons, and our artists' worst friends—the eulogistic and indiscriminating critics on our daily Press.

Art, it must be admitted, is not well patronised in Ireland, and we doubt if it will be for long years to come, under the unwholesome influences that surround it here. It is not that the Irish school has not produced clever artists, painters, sculptors, and architects, or is not still capable of producing them, for the history of Irish art from the close of the last century till the present supplies us with no small catalogue of distinguished names. But now, as in the last century and in the earlier part of the present, the same cross purposes are at work, the same jealousies amongst artists themselves are observable, the same cry for patronage and of want of it, and the selfsame hungering after newspaper eulogy even when the works produced are of the most ordinary or indifferent kind. A young artist who gives evidence in his first efforts of sterling ability, deserves an encouraging word; but laudation has been administered thick and thin to aged and young in matters of art in this city, until it has become sickening to all honest men and true artists.

Hear the author of the brochure under notice:—"From year to year the opening of the Exhibition of the Royal Hibernian Academy is heralded in the daily papers, and the public are led to expect such an array of pictures as will surpass any previous exhibition: and when the day has come, we read of a brilliant assembly of the *élite* of Dublin, who had been invited to inaugurate the opening, and to meet his Excellency the Lord Lieutenant, and a long list of their names is given; and it may be safely said one-half of them will not go to the expense of season tickets, and many of them will not again enter the door during the exhibition, and thus the Academicians sacrifice their self-respect by courting a patronage which in the end does them no service. By-and-by we read that his Excellency has secured one or two pictures at some forty or fifty pounds each, and a few more have been bought by wealthy citizens, and the artists grumble as

they have done before, that there is no encouragement for art in Dublin."

We cannot say that these are untruthful words, and are not borne out by what we ourselves have for years back observed. Neither do we think that our author has overdrawn the picture in what follows:—

"Some years ago there were about half-a-dozen young artists, all whom showed fair promise; and so long as they went to Nature for their subjects they made progress, and produced works indicating genius: at all events their pictures had individuality and the vigour of freshness; but they were one and all lauded indiscriminately and extravagantly by the Dublin Press, with one or two exceptions. This was not only unjust, but it was unkind, and thus these young artists were induced to believe they had attained perfection, and seem to have contented themselves with mere studio work, repeating themselves, and of course becoming weaker every repetition; they listened to the critics and *dilettanti*, and to the twaddle of the self-constituted judges and so-called patrons of art, whose ambition and delight it is to see their names in the lists of those present on field days in Abbey-street, at the Royal Dublin Society, or in Molesworth-street, and who evince a greater acquaintance with the slang of the studio, and picture-dealers, and auctioneers, than any knowledge of Art."

No artist who values his future reputation ought to feel thankful for showers of unmerited praise, nor ought he to be offended when his mistakes or shortcomings are pointed out. We agree with the author that the Academicians ought to show a little more dignity and respect for their order and position, and court far less of that kind of patronage that yearly puts in an appearance without doing them much essential service. There is, we must admit, too much sycophancy in some quarters, and "flunkeyism" too. The statements made in the following quotation should receive an answer from those interested. An explanation, at least, is needed, and we think it ought to be given:—

"There was a notable instance of this kind of flunkeyism at a recent election of committees of the Royal Dublin Society, when, amongst those proposed for membership of the Committee of Fine Arts, there was the name of a citizen who appreciates and has afforded substantial support to Art, and who has enriched his residence with many excellent high-class pictures; but he was not elected, and his name was passed over (perhaps because he was engaged in trade), although he has shown that he knows, at least, as much about Art, and has done more to foster it in Dublin, than any half-dozen members of this Fine Arts Committee. On one occasion this citizen lent some of his pictures for exhibition, and he had good reason to feel mortified when they were hung in a dark room in the Exhibition Palace; but on this occasion, too, there was a Committee of Art forsooth, embracing the conventional names, few of whom were possessed of any of the proper qualifications for being on such a Committee."

To afford a specimen or specimens of the indiscriminate and laudatory style of notices of pictures, landscape, seascape, and animals, which appear in some of our Dublin daily papers, the author quotes three long critiques from one of our "organs of public opinion." These three notices are certainly

models of their kind. We will not particularise any particular artist who has had the worth of his picture in criticism, but the praise is so indiscriminate and lavish, that if some of the artists never sold their pictures they would, notwithstanding, have received more than the value of their work at the hands of their newspaper critics. We have read notices this year of works exhibited at the Royal Hibernian Academy, which were more like advertisement puffs than aught else, and afforded clear evidence of the ignorance of the writers on Art subjects.

Our author suggests:—"Let the Royal Hibernian Academicians each produce a 'diploma' picture or statue, and present these to be exhibited perennally in the National Gallery. I do not suggest this merely by way of making some return for the three hundred pounds a-year which they receive from the public purse, but they may rest assured if these works of Art are worthy of their genius, such an application of them will bring forth good fruit. No good will come of sitting down and grumbling that Art is not encouraged in Ireland, that English and Scotch have got an unfair start, and that the Irish are over-weighted. Let them run all the same and do their best in the race, and let them not be disheartened by failure in one year. Success is not to be achieved by waiting quietly, Micawber-like, for something to turn up; it must be worked hard for and earned by well-directed industry, producing works deserving of it; it must be merited before it is bestowed. Let them go abroad and avail themselves of the facilities open to all, in common, let them study in foreign galleries, and learn there what cannot be learned else. where, and Irish genius must have become degenerated indeed if the results be not to their credit."

The Royal Scottish Academy is instanced by our author as an example of a body or a class of artists who can and do get on without being dependent upon Government or begging for State aid, and we are told they are making headway against all odds, coupled with the jealousy by which they are viewed and tabooed by English artists. We must grant in this particular our author is not astray in his remarks. He writes:—

"The Scottish element in the Royal Academy, London, has made a character for itself, and has called into existence something worthy of the name of a Scottish School of Painting; and they hold their ground manfully, notwithstanding that there is no small jealousy evinced by several of the London papers to their prejudice; some of these papers habitually sneer at, or try to damn their works with faint praise; but still, the Scotchmen labour on carefully, as if they had sturdily resolved that the more they were abused, the harder they would work."

We next come to an incident in the history of latter patronage to sculptors in Ireland, which has been often alluded to, and which has formed the theme of orators and poets, moralists and satirists—the Moore Testimonial. In allusion to this, our author says: "The patronage bestowed on our sculptors has been of the same character, and has produced like melancholy results—the heart of a true genius broken when his design for a statue of Thomas Moore was rejected, and a — but I will not stoop to characterise the statue in College-street. This was due to patronage, which culminated in a rank job, and the statue still stands to the disgrace

\* "Art in Ireland, 1875." Dublin: McGlashan and Gill. London: Simpkin and Marshall. Edinburgh: Menzies and Co.

of the subscribers, the disgust of every citizen, and the amazement of every visitor of Dublin. The hideousness is rendered all the more apparent and offensive, as within sight of this statue stand the statues of Burke and Goldsmith, by Foley; statues which, for dignity, grace, and high refined feeling, for character and true art, are unrivalled anywhere."

And was not this statue of Moore not also bepraised to an inordinate length in the same Dublin papers from which our author has given some "elegant extracts?" We could have wished that he had referred to the newspaper files at the time of the inauguration of the College-street statue, and quoted a few short extracts. The artist of the Moore statue did not indeed do justice to his namesake, although in justice to the artist we must say he executed other work commendably. The citizens of Dublin cannot forget the late William Carleton's bitter taunt in allusion to the treatment John Hogan received, and the conduct of certain artists of the memorial committee—"artists who never should have taken a brush in one hand without having a shoe in the other." These were biting words from the pen of our native novelist, who is now at rest himself, like the artist whose cause he pleaded.

What follows anent the Art Union of Dublin may be new to many, and for that reason we reproduce it:—"Ten years ago the Art Union of Dublin, with a patron, a president, seven vice-presidents, and a committee of twenty-one, issued their scheme for that year, stating that the objects of the society were to promote the advancement of Art in Ireland, by the purchase of works of painting and sculpture from artists, and their diffusion amongst the subscribers. They said that owing to the limited encouragement of the arts which exists in Ireland, it became a most essential importance to sustain an Art Union, not only to disseminate a more general taste for art in the public mind, but also to prevent the utter decadence of their practice in Ireland. Well, in this year the entire subscriptions were expended on the works of one artist and those of his deceased father, the artist himself being secretary to this so-called Art Union. The Royal Hibernian Academicians submitted to this, and the Press sanctioned and advocated this encouragement of art. The committee of management included amongst its names the Lord Lieutenant, a marquis, earls, lords, right honorables, baronets, the Lord Mayor, and some few members of the Royal Hibernian Academy! I ask the academicians to say how art was promoted, and had they not abundant cause to feel grateful to the Art Union for such patronage and support?"

Further on our author exclaims—"I wonder if such a thing ever occurred elsewhere than in Dublin, as academicians becoming members of a committee of management of an art union for the disposal by lottery of works from their own exhibition. This year we had the President of the Royal Hibernian Academy in the capacity of hon. secretary to the Art Union of Ireland; and at the annual meeting, as reported in the daily papers, of the committee present one-half were academicians. The subscriptions amounted to £368, a marked increase over last year, and £300 was devoted to prizes, and votes of thanks passed to the Press for the great assistance they had at all times given to the Art Union of Ireland."

Well, for our part, we can say that we have rendered no assistance to either the Art Union or the Royal Hibernian Academy, save some blunt criticism betimes, which doubtless was not kindly received, though kindly intended. We have for some years back pointed out certain shortcomings in connection with the Academy, and we have deplored that the gift of Francis Johnston, a worthy and able native architect, has not been better utilised in the interests of Painting, Sculpture, and Architecture in Ireland. There are several Art Unions in England and Scotland, and they are well supported—the subscriptions, even in the Scotch one, amounting to thousands yearly. Why is there such an amazing difference between the amounts subscribed in Edinburgh and Dublin? Our author is of opinion that there is more real wealth in Dublin than in Edinburgh, but in this particular there are many who may not subscribe to his opinion. We do not think that the public are so much to blame for art not being prosperous in Ireland, as the system by which art culture is injured in this city. At present, and for years back, it has been indeed fashionable for the Irish nobility and gentry to patronise and purchase works of art in London, the same as they purchase their pianos, but the Scotch artists have had to contend against the same fashion, and they are yearly winning back a native credit and renown. Surely the artists of Ireland have facilities enough for competing successfully with their Scottish brethren. It is an unmistakeable fact that our art bodies and organisations in Dublin are upon an unsound basis, and that a portion of our more prominent artists are pursuing a policy that is fastly ruining their profession and robbing it of every shred of dignity.

The author of the pamphlet under notice has indeed dealt some severe blows, but he is doubtless a friend, and it is far better a friend should tell us our faults than those who have no sympathy with us in our failures and misfortunes. The Government is not always blameless, and in this journal we have had often occasion of pointing out the paucity of their grants for art and other purposes, but we cannot subscribe to this eternal and unhealthy system of praising ourselves and blaming the Government in the matter of art. We could wish too, that our brethren of the Irish Press would be more honest in their criticisms, for the present character of this criticism is, in the majority of instances, utterly demoralising and absolutely dishonest. It fosters the growth of that mediocre talent in full swing at present, not only in Art but in Music and the Drama. Shakspeare may well spell ruin upon the stage in the face of such criticisms, and the representations that inspire them. We shall be glad with the author of the pamphlet if its publication may have the effect "of provoking and rousing the artists to make an effort" to reverse the present state of art culture and management, and of convincing Mr. Michael Angelo Hayes and his brethren that the National Academy of Art is not prosperous, not so much for lack of public support as for the faults specified above, and others still as damaging, but not publicly ventilated.

Apart from the present pamphlet, we may return shortly to the subject of the rise and progress of Art in Ireland, and while doing strict justice to native artists, and the Irish

school, point out what were the impediments and where success ended and failure begun. The history of Fine Arts in Ireland, is still an unwritten volume.

#### THE LITERATURE OF GOTHIC ARCHITECTURE IN IRELAND.\*

Among the list of antiquaries who have written upon the vexed question of our Round Towers during the eighteenth as well as the present century, there are a number of English and Scotch essayists, and some continental travellers have also touched upon the subject. The contributions outside our own island to the literature of the subject are not of much value. Collinson, like our own Smith, believed in the penitential uses of our pillar towers; and Brereton, who followed Collinson, is opposed to this theory, and is of opinion that they are of Irish and not of Danish or Pictish origin. Collinson's and Brereton's essays will be found in the first and second volumes of the *Archæologia*. In the ninth volume of the same publication will be found a paper by Mr. Harmer, which indicates that he believed in the anchorite uses to which our towers were applied. Gordon, in his "Itinerary," furnishes some particulars of the only two Round Towers existing, or have been known to exist in Scotland—one at Abernethy, and another at Brechin. Popular belief or tradition, he says, ascribes them to the Picts, but he did not subscribe to that belief, because Round Towers were to be found plentiful in Ireland, where he did not believe the Picts ever settled. Our own Ledwich takes Gordon to task for the assertion, and reminds him that "the Picts were Scandinavians, and early arrived in Ireland." Anderson, the Scotch antiquary, whom Ledwich quotes, ascribes the circular buildings in the north of Scotland to the Scandinavians, and believes they were places for religious worship (*Archæologia*, vol. 10.) Our native writer, Molyneux, whose Danish notions we have already seen were made the most of by Ledwich, believed that the rotund figure of our pillar towers bore a resemblance to the old monumental stones and obelisks, pyramids, mounds, and forts, the inhabitants were so fond of in Pagan times. Whether the Northerners were in favour of the rotund shape or not it is unnecessary to argue, for in the south and west of Ireland, as well as in the north of Scotland, there are numerous circular-shaped structures constructed without lime or cement, stone-roofed dwellings constructed centuries before the Danes set their feet upon our shores. Gough, in his memoir in the *Archæologia*, adds further particulars to Brereton's on the Round Towers at Brechin; and Pennant, in his "Tour in Scotland," in speaking of this last tower and others, is of opinion that these structures could not be designed for belfries in consequence of being placed near the churches infinitely more commodious for that end. Ledwich, in allusion to Pennant's observations, writes:—"This remark might pass very well from a hasty traveller, but is unworthy the pen of our ingenious tourist, because it supposes the steeples of churches and round towers coeval; in this point of view, the latter must have been constructed for some other purpose than that of belfries. But, in fact, these towers were built when churches were of wood, and when the campanile was a distinct edifice, and long before it was usual to connect the steeple with the church."

It will be recollected in our last paper that we cited Mr. D'Alton, one of the moderate advocates of the Pagan origin, and that, according to his view, it was impossible the Christians would have erected churches of wood, and bell-towers of stone, or have bestowed incomparably more care and skill in the erection of these towers, no matter for what use they may be intended, than on the churches, which should be their first care. In the face of Mr. D'Alton's opinion, and remembering that the Round Towers are not uncemented struc-

\* See ante, p. 115, and preceding issues.



tures, it is almost impossible to believe that these towers were built when the churches were of wood, and at the time, and for the purposes assigned by Ledwich and those who have followed in his wake. Dean Richardson, like Harris, was of opinion that our towers were for penitential uses; and Dr. Milner also subscribes to this view, saying—"It is impossible to show what other purposes they were calculated for, and that it is equally impossible to discover the vestiges of any other *cluseria* in the neighbourhood of the great churches."

Bell, whom we have several times quoted already, combats Dr. Milner's assertions in these words:—"Dr. Milner seems to forget the existence of such '*cluseria*' as stone-roofed cells at Kildare, Kells, and elsewhere, which were as obviously suited to the purpose as the towers. Besides, cheaply as labour in those days could be procured, one of these towers would cost too much to the monastery or the district, or whatever other community, civil or religious, might be then living, to be thus devoted to the exclusive salvation of an individual, to the prejudice of many hundred pious souls equally ardent in their aspirations after such superior sanctity and mortification. It is equally unlikely that the insulated individual who made a vow could, from his own resources, or by his own exertions, erect such a pile for his own use."

Mr. Bell continues—"The ascetic life held forth, or was supposed to hold forth, too many advantages to the numbers who embraced it to permit the dispensation of those benefits to be limited to so few as all the Irish Towers together could accommodate. I can see no way of getting over the difficulty, except by supposing that the virtue of the anchorite's prayers and austerities was commendable to those who acquired an interest therein by contributing to his support, and who in this way were enabled to enjoy the merit of these austerities, which may be said they have thus performed by proxy. In this view, no sacrifice of expense would be too great in return for such advantages. It is, however, very possible that the fanatic zeal which suggested such voluntary mortifications would also occasionally suggest these towers, if previously in existence, as very convenient retreats wherein to perform them; and, to the solitary recluse, the steeple tower would afford as comfortable a retirement as the cloistered cell."

The Round Towers might, of course, be used for penitential as well as the various other uses, even if not originally built for either or any of the uses discussed, and that they were appropriated to various uses than those intended by their first designers and builders is certain.

In the present century, the Royal Irish Academy, with the object of satisfactorily solving, or leading to the solution of, the mystery of the origin of our Round Towers, granted sums at stated periods for prize essays. About 1828-9, Mr. Bell's treatise won distinction, and in 1833-4 Henry O'Brien, if we remember aright, came off with honours in the Pagan school; and near the same period the late George Petrie received substantial honours for his great essay—we say great, independent of his Christian theory as to the origin of our towers.

Though we may not agree with all the erudite and indefatigable George Petrie has written respecting our ancient architecture, and though he has made mistakes, we are, at the same time, fully impressed with the extent and value of his labours, and we fear it will be long years before his place is filled up by so painstaking, loving, and laborious an antiquary. Both as an artist and a *litterateur* he has rendered signal service to his country.

In the prize essays which have received marks of distinction at the hands of the Royal Irish Academy, we ought to have mentioned that the Academy, as a body, did not originally hold themselves answerable for the views put forth, consequently Pagan and Christian theorists had full liberty to devise, deduce, and dogmatise as they pleased. Poor Henry O'Brien's Phallic theory met with rough usage at the hands of his Christian countrymen, not only on the appearance of his volume, but ever since. Notwithstanding, he

has impregnated others with his views, and has still disciples and fellow-countrymen who uphold his opinions in part, and preach them.

Dr. Petrie's work was, somewhat unfortunately, on its appearance accepted as a satisfactory settlement of the vexed question by a large number of our countrymen, and by some of the foremost early writers of the Young Ireland school. Thomas Davis and a large portion of the Irish Press upheld Dr. Petrie's views. Between the first reading of Petrie's essay, in 1832, to the publication of his work, twelve or thirteen years later (the work having largely grown in the meantime), the industrious antiquary had good time to mature his views and bring together his proofs. It must be admitted that he has failed in some prominent instances, and assertion has to take the place of proof. Petrie, like others, during his life lived to find he had opponents who were not satisfied with his theory, and since his death the opposition has grown stronger. The question is as fascinating as ever for Pagans and semi-Pagans, Christians and demi-Christians.

In our next we will pass under notice O'Brien's theory in some of its details, and that propounded by Mr. Marcus Keane, and we shall also take a glance at the views enunciated by Mr. Henry O'Neill. If the greatest happiness exists in the greater number, our countrymen ought to be happy in the possession of such a number of theories respecting one species of structure, examples of which still stud the land, defying time and pointing to eternity, and which long centuries since have forgotten the names of their builders.

#### STATUE OF THE ARCHBISHOP OF TUAM.

THE colossal statue of the Archbishop of Tuam, the work of the Messrs. Farrell, Gloucester-street, is just completed at their studio. As a work of native art it will doubtless find many admirers. The faithfulness with which the features of the still living cleric have been transferred to the inanimate marble will add fresh laurels to the fame already earned by the sculptors. Would that we could chronicle the completion of the "Liberator's" statue, for transfer to Sackville-street, from the same studio as that from which the figure of "John of Tuam" is about to issue, to be placed in the public square of Tuam! We hope to publish a photo-lithograph in an early number—probably about the date of its inauguration.

#### ART DEVELOPMENT AND WOOD CARVING.

At the annual meeting of the Sheffield School, held on the 23rd ult., Mr. George Godwin, F.R.S., and editor of the *Builder*, at the request of the committee, delivered an address and distributed the prizes. The report presented showed an increase in the number of students, and an improvement in other respects.

In the course of his address, Mr. Godwin, after speaking of the Useful and the Beautiful, and saying that nothing could be more useful than the really beautiful in art, went on to speak of the use of museums and the use and utility of sundry collections as aids for art-culture, and the modes by which these objects could be better utilised. He alluded to the want of fitting employment for females, and instanced cameo-cutting or the production of shell cameo as an elegant sort of labour worthy of the attention of female art-students; and he was happy to say that, since he first suggested it some years ago, considerable progress in the art has taken place in this country.

Mr. Godwin also strongly advocated wood-carving, and pointed to the extent which this art is practised even among the Swiss peasantry. He said:—"Hundreds of families execute carvings of a particular sort by their firesides, and so materially increase their income. Men, women, and children

handle their knives with wonderful facility, and children through this teaching acquire special qualifications for becoming first-rate carpenters, stone-cutters, and decorative painters. In America an endeavour is being made to extend the practice of wood-carving, and your energetic and eminent president, Mr. Bragge, has shown me photographs of doors, skirting boards, chests, and picture-frames, ornamented with carvings by a female class, established for the practice of the art in Cincinnati, and which he has himself recently seen in operation."

In conclusion, Mr. Godwin intimated that if the committee of the school should establish a class to inaugurate the movement in England, he would "offer a modest prize, say ten pounds, to be given to the executant, male or female, of the best and most artistic piece of carving produced in the first year, the work still remaining the property of the executant."

Cannot something be done in Dublin in connection with our Art Schools in this direction? We have very few indeed of good wood carvers in our midst. The old Dublin penny journals and magazines of 1832-6 gave employment to some of our Dublin wood-engravers, and some of the artists that found employment upon them and the *Irish Penny Journal* in 1840-1 subsequently passed over to London and secured remunerative employment there. But, apart from wood-engraving, there is a profitable opening for good wood-carvers in connection with house decoration and house furniture. At present much of the carvings on our chair and sofa backs, rails, and feet is of the poorest and most jejune kind. It is the same on our sideboards, cabinets, tables, and gilt looking-glass frames. Good cabinet work is still manufactured in Dublin, but in the matter of ornamentation and delicacy of detail it is not to be compared with the cabinet work executed here in the early part of the present century. Our furniture firms import a great deal of inferior work, which, though dazzling to the eye with gilding and japanning, is wretchedly and most dishonestly put together. Like houses that are "built to sell," much of our furniture is made to sell and to walk asunder in the first year of its use. We will return to this subject.

#### ACOUSTIC DEFECTS IN THE NEW SYNOD HALL, HIGH STREET.

At a recent sitting of the Synod of the Church of Ireland, Mr. Sanderson said he wished to bring forward a subject which concerned the convenience of the House. He quite realised the immense advantages that hall presented, but he supposed every member had experienced the great difficulty of hearing. It was very awkward to be looking at a gentleman at the opposite end of the hall without hearing what he said. He would take Dr. MacIlwaine for example. He had seen him speaking several times since he came to the Synod, but had never been able to hear a single intelligible or connected observation from his lips. There was no knowing what they thus lost on the benches on his (Mr. Sanderson's) side of the hall, nor what effect might have been produced had such speeches been heard. He might be considered selfish in this matter, for it was pretty generally known that he proposed speaking to certain questions to be submitted to them; but really he almost despaired of making himself heard intelligibly in the hall, unless by the expedient of writing his speech and getting the Rev. Mr. Verschoyle to deliver it. What he practically wished, however, was that the committee of arrangements would, without further loss of time, take some steps which would enable them to hear, and not have them sitting looking at gentlemen in dumb show, without knowing what they were talking about. He hoped the defect would be soon rectified.

Rev. Dr. MacIlwaine seconded the motion, and thoroughly agreed with Mr. Sanderson as to the bad adaptation of the hall for hearing. He suggested that they should try wires suspended across the house.

Mr. Tankerville Chamberlaine—I may mention that the munificent gentleman who placed this hall at our disposal, informed me on Saturday afternoon that he was about to have wires put up therein.

### ON THE CONDITION AND PROSPECTS OF ARCHITECTURE IN THE UNITED STATES.\*

THE importance of travel to the professor or student of architecture is a matter pretty extensively recognised and admitted. Even before the days of steamships and railways, it was considered an essential part of every English architect's education that he should spend a year or more on the continent of Europe, visiting the noble monuments of ancient, mediæval, and modern art to be found there. But, notwithstanding the great facilities of travel alluded to, which have brought America practically as near to us as France or Germany were but a few years since, that continent has not commonly been looked on as by any means a desirable field for similar travel. It has been too generally assumed that there was nothing to be seen or learnt of the art in America, an error which I trust this paper may have some effect in exploding, while at the same time I may be able to point out the peculiar attraction America presents, as being undoubtedly the grandest field the world has ever presented for architectural practice, calculated to awaken the noblest ambition in the breast of every true lover of his art; an ambition too, not by any means likely to be disappointed in those who, having become duly qualified by European study, may not find suitable openings at home, and may choose to transfer the scene of their labours to the New World.

In this latter respect America, and especially the United States, is widely different from the continent of Europe. Of all the English students and architects who annually visit the classic cities of Europe, it is rare to hear of one engaging in actual practice, much less settling in any of them. The number of new and important buildings to be erected is so few in comparison with the amount of local talent, that, although we may now and then hear of an English congregation, in some continental city, getting a design for their church from a London architect, or of an English millionaire employing one of the same fraternity to build a villa on the shores of some Swiss or Italian lake, these instances are so few and exceptional as only to prove the general principle that the continent of Europe, albeit an admirable hunting ground for English engineers, is by no means an attractive field for practice for architects of the same nationality. But it is hard for an English architect of any ability to travel in the United States and not be strongly tempted to settle there. That more have not done so is rather a matter of surprise, possibly to be accounted for by the fearful struggles, political and financial, through which the country has so recently passed, and by the fact that architects are commonly men of quiet and domestic tastes, whose household gods are dear to them, and who, unlike their brethren the engineers, ordinarily prefer modest competence at home to the chances of achieving fame and fortune abroad.

To be sure, a large proportion of the profession in America is composed of men born in the United Kingdom, as is the case there with all other professions and trades. But these men have commonly emigrated while young, and have acquired their profession in America. The number of those who have studied in Europe is comparatively small, and it is to be observed that in most instances they occupy important and leading positions. Of course they are at a slight disadvantage at the outset compared with native Americans, possessed of local knowledge and influence, but this is soon overcome, and they are, or ought to be, possessed of great advantages over the foreigners of other nationalities, French and German for instance, in speaking the same language as prevails in the country of their adoption, and being accustomed to nearly the same

laws and social usages. Diversities of this kind, though usually mastered in time by the Germans, seem to present an insurmountable obstacle to the success of our Gallic neighbours in the practice of architecture in the United States. Architects of other nationalities may be thankful for this, for American taste is so decidedly in favour of everything French, and French ability, I need hardly say, is so strongly marked, that if French architects were only to take kindly to American soil they would soon carry all before them upon it. As things are, however, the field, though wide and open to all nations, is so circumstanced as to invite English-speaking architects more strongly than any others.

These views may seem, at first sight, to be at variance with those expressed in a paper on American practice recently read by me in New York, as it is there stated that architects are neither so much appreciated nor employed in America as in Europe. But this seeming contradiction will be reconciled when the causes are investigated, some of which are dealt with in that paper. I am convinced that the American public only requires to be shown what well-qualified architects really can and ought to do for them, to appreciate and remunerate them correspondingly. But so long as architects there are content, as they are, to neglect the constructive, financial, and executive parts of their profession, and choose to devote themselves almost exclusively to the æsthetic, it is no wonder that so eminently practical a people hold them in slight esteem, and look upon them to a great extent as mere draughtsmen.

With these preliminary remarks I will now proceed to give some account of the condition of the art itself, as shown in the principal buildings, which I will endeavour to describe under their several classes.

Vast as is the territory of the United States, its active life is, I think, more concentrated in cities than in Europe, and it is in them we must look for the best types of American architecture. The smaller country towns and villages can scarcely be said to possess any architecture at all, being often built wholly of wood, in plain box-like forms, or else of brick, used in equally simple forms, and taxing no other resources than those of the local "boss" carpenter or mason. There are but few country mansions on a large scale surrounded with ample demesnes, such as are to be found in Europe, consequent on the absence of a territorial aristocracy. There are, however, in the vicinity of all large cities numerous pretty villas occupied by wealthy merchants and bankers, which bear a close resemblance to the same class of houses in the old country, with some marked peculiarities to be presently noticed. The more common ambition, however, of the American millionaire is to build neither a country mansion nor suburban villa, but to erect for himself a gorgeous town-house on Fifth-avenue, New York, or some of the corresponding streets in other cities. City life is, for various reasons, the most attractive, elegant and fashionable, and hence the town houses, especially of New York, are by far superior to the country or suburban, and compare favourably with those of most European capitals.

Of course, in the wealthy and fashionable quarters, churches of corresponding character must be looked for; religion, although not specially recognised by the State, being quite as fashionable in America as in England, and hence, in these quarters of the chief cities, we find costly churches of nearly every denomination alternating with lines of stately mansions, and as different in their character and cost from the simple wooden-spired boxes to be found in the villages above-mentioned as can well be conceived. In the poorer quarters of the cities the churches are of corresponding character with the houses around, and may be shortly described as being nearly all of what is known as the "Little Bethel" type amongst ourselves.

The unsettled habits of so many of the American people, and the great expense of

housekeeping, causing a large and respectable section of the community to reside in hotels, have developed the latter so as to rank amongst the "great institutions of the country," and as examples of architecture they will require special notice.

The vast commercial relations of the great cities have also required that warehouses and shops, or "stores," as they are called, should assume enormous dimensions, and they are more often than with us highly decorative and palatial in their appointments. Banks and insurance offices, also the offices of the numerous journals, form splendid subjects for architectural treatment, and are commonly carried out in a liberal spirit.

The post-offices, custom-houses, and law courts have nearly all recently undergone a process of reconstruction on a much grander scale than before, chiefly by the United States Government, and, if we except the miserable pittance paid to the architects, no expense seems to be spared to render them worthy of a great nation. The telegraph offices, albeit still in the hands of private companies, have also recently been taken in hand, and some noble buildings are in progress for these purposes. The railway stations, or "depôts," as they are called, are rather behind in the race, being as yet generally temporary wooden sheds, and but one really colossal terminus worthy of comparison with those of Europe, has as yet been erected in New York.

The town or city halls, and the State Capitols, in which the legislatures of the various States hold their meetings, have nearly all been found too small and old-fashioned for modern ideas, and some very noble and magnificent new buildings are either in progress or projected for these purposes.

There are large and handsome theatres and opera houses to be found in every great city, which, from their occupying excellent and commanding sites, and the general spaciousness and elegance of their appointments contrast most favourably with ours. The same may be said of the music and lecture halls, which especially abound in Boston and New York.

Public museums and picture galleries are as yet in their infancy, and can scarcely be expected to rival those of Europe for many years to come, but every large city has a respectable public library, the buildings for which are often costly and handsome. There are in New York, Brooklyn and Boston appropriate buildings for the purpose of annual art exhibitions.

Charitable institutions, such as hospitals and asylums, appear to be as well sustained and appointed as any in the world, and some of the buildings for these purposes are very extensive and magnificent. In a country which has set so good an example to our own on the subject of education, it is only to be expected that schools and colleges would abound. Of these buildings, the public schools, commonly erected by the city or state authorities, though often spacious and well appointed, are rather commonplace building than architecture. The colleges as yet seem to suffer from the want of adequate funds. The two well-known universities, Harvard and Yale, have no state endowments, and are dependent on private munificence. Hence, venerable as they are, they have as yet little to show that can be called architecture, and that little is of a very poor class. Trinity College, Hartford, Connecticut, has recently sent over to Mr. Burges for designs for a new college on an immense scale, which have been illustrated in some of the English journals, and the first instalment of which, I understand, is about being contracted for. One of the latest founded universities, Cornell, in the State of New York, has, however, shown its appreciation of our art by the appointment of a professor of architecture (though, singularly enough, a clergyman has been selected for the post), and I believe similar professorships are in contemplation at Harvard and Yale. There is in Boston an excellent scientific school, the Massachusetts Institute of Technology,

\* By William Fogarty, F.R.I.B.A. Read at Ordinary General meeting of the Royal Institute of the Architects of Ireland, April 15th, 1875.

which has a professorship of architecture attached, to which, however, an able practising member of the profession, Mr. W. R. Ware, has been appointed. I hope these may be hints to the board of our honoured University of Dublin to follow the same example, which has also been set by Oxford, Cambridge, and London.

The public cemeteries compare very favourably with ours, not alone in the sites they occupy, but also in regard to the order in which they are maintained and the substantial character of the monuments, in which granite and marble are profusely employed. Notwithstanding the costliness of these, and the excellence of the materials and workmanship to be seen in them, they more often display ignorance and bad taste in design than otherwise, for the very simple reason that the American public has not yet generally learned the propriety of employing architects upon them, but orders them directly from stone or marble masons.

In materials for building, the United States appear to be particularly favoured. Granite of varied colour, admirable texture, and almost unlimited dimensions abounds, and is extensively used in public buildings, for which the largest columns can be had in one piece, and some varieties admit of being polished quite equal to the granite of Aberdeen. It is also used for paving the side walks, in which it is not uncommon to see slabs 15 feet by 8 laid down, giving the whole width required without a joint. White marble exists in great profusion near New York and elsewhere, and is largely used, so much indeed as to become nearly as common as Bath or Portland stone in England. It is easily worked, and gives a beautiful surface without being polished, of which operation, however, it is also susceptible. The sandstone in general use is the well-known "brown stone," raised in the states of New Jersey and Connecticut, and extensively employed in the house fronts of New York, for which it is well adapted, its rich warm tints producing a very pleasing effect. There are also lighter coloured sandstones used, from Ohio and Nova Scotia. I do not remember seeing any specimens of oolitic stone, such as Portland or Bath, but it is no great loss to be without a class of material which, however easy to work, is equally facile at disintegration. Red bricks are made, especially in Philadelphia, much superior to any I have seen in Europe, and white or cream-coloured, in some of the western states. Cement is rarely used as an external coating, the species of architecture in which it would be employed at home being commonly rendered either in stamped zinc or cast iron, the use of which, in the fronts of buildings, is very extensive, and, as characteristic of the country, deserves special notice.

In woods the United States are rich. The several varieties of American pine we are accustomed to here are, of course, much used there also, but in addition walnut, butternut, chestnut, ash, oak and other hard woods abound, and are nearly the same price as pine, the only difference of cost being in the working, which again is counterbalanced by the saving in painting. Hence, these woods are extensively used, and give a fine effect to the interiors, being commonly wrought and finished by skilful cabinet-makers (mostly German) with great taste. The ironmongery in general use seems much superior to the corresponding articles used in England, the flaps of the hinges being usually silver-plated or otherwise decorated, so as to produce a very fine effect by contrast with the polished hardwood of the doors.

In plumbing and engineering works applied to buildings, I must say the Americans appear considerably ahead of us. The excellence and finish of the baths, lavatories and other sanitary appliances in the principal houses and hotels, is such as to deserve the highest encomium. The same applies to the warming of buildings by steam and hot water, in which great progress has been made during the last few years, consequent on the

severity of the climate in winter, which severity, however, now is scarcely to be felt, so completely are the halls and passages, as well as the principal rooms, kept to an even temperature by such appliances. I think in this particular we have much to learn from the Americans. The use of lifting-rooms, or "elevators," is very general in all the large and lofty hotels, warehouses and blocks of offices, and the perfection of their mechanism exceeds anything I have seen elsewhere, and has the effect of causing the uppermost stories in these buildings to be nearly, if not quite, as valuable in letting as the lower. From all which it will be seen that in materials, workmanship and mechanical appliances the Americans are greatly favoured; and such resources, used under the direction of able architects, ought to result in the development of as noble a school of architecture as is to be found in the world. That this result has not yet been attained is unfortunately the case, the cause being, as I believe, to a great extent to be found in the unnatural severance between the artistic and practical, which has hitherto prevailed in American practice. Many of the largest and most important structures, built of the most costly materials, displaying great excellence in workmanship and a high degree of perfection in their mechanical appliances, have been erected without any architect at all; the proprietor preferring to place himself in the hands of a "practical man" rather than of an artistic genius, who, as he believes (and too often with truth), knows nothing of the value of materials and work, and can do little else than "draw plans." Of course such occurrences are not universal, but there are enough of them to stamp a vulgar and commonplace character on American buildings, and sometimes to get American architects discredited in the eyes of foreigners for what they really had nothing to do with.

I need scarcely say, if we except the Aztec ruins in New Mexico and Arizona, that there is very little architecture of historical interest in the United States; but such as there is, is to be found in the older cities on the eastern seaboard, New York, Boston, Philadelphia, and Baltimore, and recalls the time of Queen Anne and "the days when George was king." It is a very close imitation of English works of the same time. The early years of the Republic, and the commencement of the present century, seem to have given rise to a few respectable old-fashioned practitioners in these cities and in the then newly-founded city of Washington; and the setting in of the Greek mania in Europe was attended by a similar rage for Greek temples in all these cities, and some of the principal United States buildings, including the Treasury and Patent Office are among the results; also the Girard College at Philadelphia. These buildings are, I think, neither any better nor worse than the corresponding efforts of the Greek school at home. The enlargement of the United States Capitol, conducted under the direction of Mr. Thomas U. Walter, one of the leading practitioners of the time, displays a departure from the rigid Greek types so much in vogue, and, despite the execution of the dome in cast iron, must be admitted to be a very noble and appropriate pile. It occupies a commanding site, and the dome stands well up from the rest of the building, and is seen not alone from all parts of the city, but from the country for many miles around, ordinarily under a clear sky. Having seen most of the great domed structures of Europe I am not aware that any of them produces, on the whole, so fine an effect. Since the completion of this great work a long pause took place in the United States Government operations, until the advent of Mr. A. B. Mullett as architect to the Treasury. This architect, during the eight years in which he held office, certainly had opportunities which fall to the lot of few. Some thirty or forty great buildings, costing from £100,000 to £1,000,000 sterling each, and sometimes even exceeding the latter figure, have been planned

and either wholly or partially carried out under his direction. Many of these are illustrated in the last report issued from his department, and those I have seen are executed in the most solid and substantial manner, ordinarily of granite in large masses. Their architectural character, though peculiar to the department, may be taken as one type of what is certainly developing in the United States as a national style, and which may not inaptly be described as American Renaissance. Other examples of it are the new State Capitol for New York, in course of erection at Albany, under the direction of Mr. Fuller, and the new City buildings at Philadelphia, by Mr. McArthur, to be more particularly noticed further on.

The older portions of the cities above-mentioned are nearly as irregular and crooked as any European city, but these portions (except in Boston) form but a small part of the area, the rest being comparatively new and laid out in rectangular blocks, which, however convenient for building purposes, are very prosy and tiresome in effect. Where the ground happens to be irregular it produces very disagreeable results, and indeed, as regards convenience, is not without its drawbacks, as it frequently entails the necessity of traversing two sides of a right-angled triangle instead of the third. In New York it is seen to the greatest advantage, the great length of the island as compared with its breadth giving facilities for it, and the distinction between streets and avenues being easily remembered, also the mode of numbering the streets, but in Philadelphia it is particularly tiresome. It was a great pity that in laying out these cities diagonal lines were not occasionally introduced, and that more space was not reserved for squares and parks. Except Boston, which has a very fine open space in its midst, called "the Common," none of the cities have spaces of this kind worth mentioning within their ordinary limits, although they have all recently added noble parks in their outskirts, the so-called Central Park of New York being one of the finest. One acre of park or square in the centre of a city, however, is worth a dozen in the suburbs, and Englishmen may be thankful to monarchical institutions for giving London such magnificent breathing spaces, running up into the heart of the city, as St. James's and the Green Park. Dublin may also take pride in the fact that there are no such noble squares in any of the American cities as Merrion-square and St. Stephen's-green. The city of Washington is very nobly laid out indeed on the French system, and is not amenable to the complaint of prosiness or inconvenience attaching to the rectangular style of planning, but it has never filled up as expected, and it will doubtless be many years before it assumes a character worthy of its importance. Although the residence of the President, Cabinet and foreign ministers, and pretty lively during the session of Congress, it is not as yet fashionable, and has little of that metropolitan character which, despite State and Governmental arrangements, belongs properly to New York. The latter city is the real centre of wealth, power and influence, and is destined at no distant day to be a formidable rival to Paris and London in architectural grandeur. As it is, the Fifth-avenue rather exceeds in magnificence any one street or avenue in Europe, and it is the centre of a district which is no unworthy rival of the best quarters of the European capitals.

The climate of the United States, and especially of New York, is eminently favourable to architectural effect. The total absence of smoke, and the frequency of bright clear days and brilliant sunshine, have a marvellous effect in making even commonplace architecture look well. Just as amid the smoke, fogs, and dust of London or Dublin the works of the greatest masters become grimy and dull, so there the doings even of mediocrity appear always to advantage. It must be consolatory for the Americans to reflect, however, that, while the archi-

texture of their cities is decidedly susceptible of improvement, no earthly power can change the climate of the British Islands.

What Sir Gilbert Scott calls the "vernacular" architecture of the American cities was, until within the last twenty years, a reflex of that of the British, the same mouldings and other features appearing in corresponding places. Within that time, however, chiefly from the large influx of German skilled artisans, a vast improvement has taken place, and the details and finish of ordinary house work are now very much superior to those of the same class of buildings at home. The work, as already noted, is generally done by cabinetmakers, and much more elegant forms and spacious proportions are given to doors and other internal woodwork than what are usual with us. Wainscoting is largely used, and the newels and balustrades of stairs are treated in a highly artistic manner, contrasting most favourably with the meagre and skinny forms customary here.

(To be continued.)

#### BOOKS RECEIVED.

*The Transactions of the Royal Irish Academy—Report on the Strength of Single-riveted Lap Joints.* By Bindon B. Stoney, M.A., M.R.I.A., Memb. Inst. C.E. Dublin: Published by the Academy.

THIS report, or paper, is a very interesting and valuable one of its kind, and now that iron is so much utilised in building construction, as well as in ship-building and other cognate branches, a reference to Mr. Stoney's report and accompanying copious illustrations in the tables given, will be found of great service to architects, engineers, mechanics, and others. The plates experimented on were nominally  $\frac{1}{2}$  inch thick boiler plates, and the rivets were nominally  $\frac{1}{2}$  inch in diameter, the riveting, according to the engineer's statement, being carefully done by hand. Mr. Stoney submits as a beginning that the "gross area" of a plate is its total transverse area before punching or drilling holes, and the "net area" of a plate is the effective area through the line of holes, and is equal to the gross area, minus the area of the holes cut out; and next, the useful strength of a joint is measured by the breaking strain of the joint, divided by the gross area of the plate.

It must be remembered at the same time that the hole for a  $\frac{1}{2}$ -inch rivet is usually from .08 to .06 inch larger than the nominal size of the rivet, in order to permit the latter to enter freely when heated, and expansion, of course, having taken place. The bearing area of a rivet is stated to be simply the product of its diameter by the thickness of the plate against which it bears. Mr. Stoney divides his conclusions deduced from the numerous experiments into three classes, as they effect the strength of rivets, the strength of the plates, or that of the joints as a whole. He shows us, by reference to a number of diagrams, the shearing strength of rivets in punched and drilled holes, the shearing strength of rivets in single-riveted and double-riveted lap joints compared, the apparent conclusion being that the shearing strength of rivets is greater in double-riveted than in single-riveted lap joints. Further experiments are, however, desiderated to determine their relative proportions. As to the pitch of rivets, the experiments indicate that  $\frac{1}{2}$ -inch rivets are likely to fail before a  $\frac{3}{4}$ -inch plate of fair quality when the pitch exceeds three diameters of the rivet hole, and that consequently this pitch should not be exceeded in single-riveted lap joints. It is observed that the strain per square inch of bearing area of rivets in the strongest forms of single-riveted lap joint, given in one of the tables, does not exceed 30 tons, and in general is much less, while it may be as high as 44.7 tons per square inch, or double the tensile strength of iron when the rivet is in double shear.

Speaking of the lap of plates, Mr. Stoney

holds that the boiler makers' practice of making the lap of single-riveted joints equal to 8 diameters of the rivet is sufficient when the plates are of fair quality, and that the splitting of a plate between the edge and the rivets is not so likely to occur in wide plates, where several rivets are on a transverse row. He holds also that the lap of narrow single-riveted bars should not be less than four times the diameter of the rivets. The experiments as to the pitch of holes indicate that the best pitch in single-riveted lap joints for  $\frac{1}{2}$ -inch rivets in  $\frac{3}{4}$ -inch plates is from 2 to 2 $\frac{1}{2}$  diameters of the rivet hole, and that consequently the shearing area of the rivets will exceed the net area of the plates in the strongest arrangement of single-riveted lap joint. But this conclusion, the author allows, is at variance with the common opinion that a coarser pitch is stronger than the experiments indicate, and it shows that the boiler-makers' practice of making the pitch equal to from 2 $\frac{1}{2}$  to 8 diameters of the nominal size of rivet is well founded.

The effect of drilling without riveting on the net strength of plates is shown by experiments to indicate that drilling iron plates (without riveting) reduces their net strength slightly more than is merely due to the sectional area of the iron drilled out. The effect of punching without riveting on the net strength of plates is shown by experiments to indicate that punching iron plates (without riveting) reduces their net strength considerably more than is merely due to the sectional area of the iron punched out. Experiments indicate that the operation of riveting and the subsequent longitudinal contraction of the rivets in cooling do not weaken the plate, but the reverse; and that no benefit is derived from the friction produced between the plates by the contraction of the rivets when a rivet is on the point of rupture, for then the rivets have elongated under strain, and consequently have lost their grip on the plate. Results are thus tabulated in round numbers:—The tearing rivet strain of the original solid plate, 100; the tearing rivet strain of the iron between the holes in single-riveted lap joints with drilled holes, 90; the tearing rivet strain of the iron between the holes in single-riveted lap joints with punched holes, 80.

On these results Mr. Stoney observes that from the mechanical treatment and from the form of the joint, the iron which remains between the holes in a single riveted lap joint has lost 10 per cent. of its original strength when the holes are drilled, and 20 per cent. when the holes are punched; and to obtain the actual strength of the joint, a further reduction must be made for the iron cut out in the rivet holes, which will be found to reduce the strength of the joint to nearly one-half of the proportions given in the table.

The strength of single riveted lap joints is shown by the experiments to indicate that though the strength of a single rivet and lap joint with punched holes, and of the best proportions, may sometimes approach or even equal 50 per cent. of that of the solid plate, yet this cannot be depended upon, as otherwise it may be found to sink as low as 37 per cent., while the average strength of the nine joints with punched holes (of which illustrations are given) is 43.7 per cent. of the original solid plate. Experiments indicate that though the strength of single-riveted lap joints with drilled holes, and the best proportions, may occasionally reach or even exceed 50 per cent. of that of the original solid plate, yet that they cannot be depended upon, as it may again be found to descend so low as 44 per cent. while the average strength of the nine joints with drilled holes (given in the table) is 47.7 per cent. of the original plate.

After comparing experiments as between the relative strength of a punched compared with a drilled joint, and giving the average reduction of strength of single riveted lap joints with punched holes, compared with those with drilled holes, Mr. Stoney proceeds to put the results in a concise form, and

arrives at the following general conclusions, which afford safe rules for practical guidance in single riveted lap joints:—1. The strongest pitch for single riveted lap joints is about two and a-half, and does not exceed three, diameters in the nominal size of the rivet. 2. The lap of single riveted joints need not exceed three diameters of the nominal size of the rivet for wide plates of fair quality and for diameters for bars. 3. If the breaking weight of the original solid plate is 100, the breaking weight of a single riveted lap joint of good proportions with drilled holes will be 48,—ditto with punched holes will be 44. 4. In single-riveted lap joints, the difference of strength in favour of drilled worked over punched work, is about 9 per cent. of the latter.

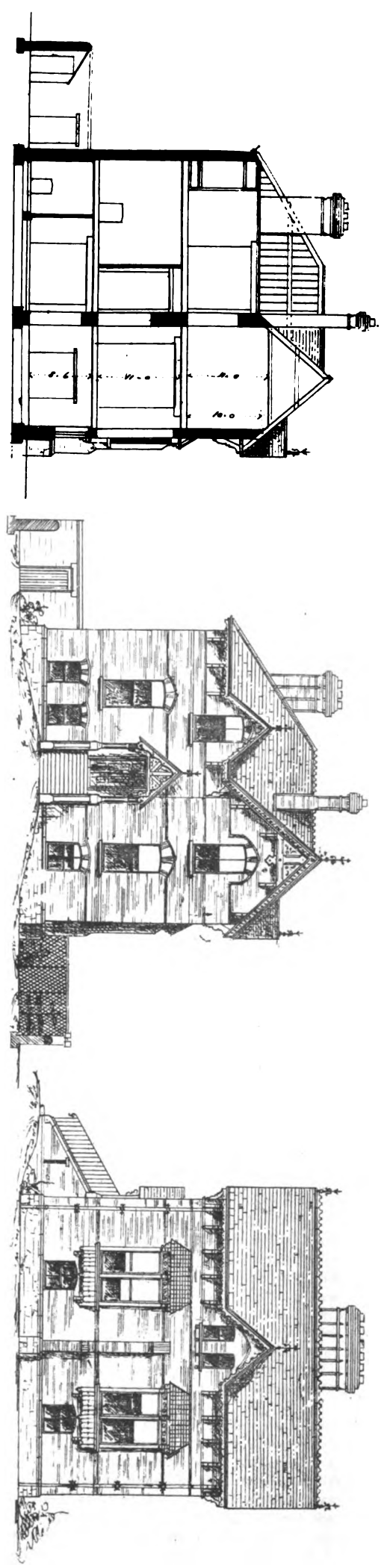
Mr. Stoney, in framing these practical rules, does not take the lowest in place of average percentages, from his tables of experiments, remarking "inasmuch as a joint might in practice be as weak as, and even weaker than the weakest of those on the Table, but it will be recollected that the engineer always adopts a co-efficient, or factor of safety, for the actual working strain in any structure, and this co-efficient for riveted work generally varies from one-fourth to one-seventh of the breaking strain, depending upon the nature of the work. Thus, sufficient margin is left to ensure safety in working practice." The results obtained by Mr. Stoney in his experiments, agree pretty closely with those obtained by the late Sir William Fairbairn.

An engraved plate is appended to Mr. Stoney's Report of the Lever Testing Machine by which the experiments given in the tables were made. As described, the main lever of the machine is of wrought iron, with steel knife edges at the bearings, the larger arm of the lever being 20 feet, and the shorter arm 1 foot in length. Thus, a weight of over one cwt., or its fractional parts, in the scale hanging from the end of the larger arm produces a tension of one ton and its corresponding fractional parts in the specimen under test, which connects the shorter arm of the lever with a powerful adjusting screw, which is secured to the base of the machine. The weight of the main lever is balanced by means of a small lever placed above, and connected with its centre of gravity, so that the main lever is thus floating as it were in air. The machine appears to be one of great delicacy in construction and adjustment; and friction and complexity, due to numerous bearings are, in truth, avoided, as there is only one main lever. We have but little more to add, save that the tables and "observations," with the accompanying diagrams given in Mr. Stoney's Report, render it a most satisfactory one, and as a contribution to Science and of Science, it reflects credit on the author and the transactions of the Royal Irish Academy.

*Our Dwellings Warmed as they are, and as they might be; with a Chapter on Ventilation.* By J. W. C. London: Lockwood and Co., Stationers' Hall-court. 1875.

THE author has here presented, in a clear and intelligible manner, his and the popular views respecting warming and ventilation. He discusses *seriatim*, in a series of short chapters, the comforts and discomforts of our present methods of house-warming, treating them under the headings of "Open Fire-Grates," "Can our Fire-Grates be Improved?" "Open Stoves," "Slow-Combustion or Close Stoves," "Gas Stoves," "Hot Water Heating," and "Ventilation." The two last chapters may be said to be the principal ones, and to lead to the improvements therein suggested is the object he has in view. He goes in for the abolition of our present open fire-grates, as they do not fulfil the conditions expected or claimed for them in the matter of warming or ventilation, and as otherwise ruinously expensive fixings. He next discusses the modes proposed for improving our open fire-grates by increasing the radiating power of the fire by the means

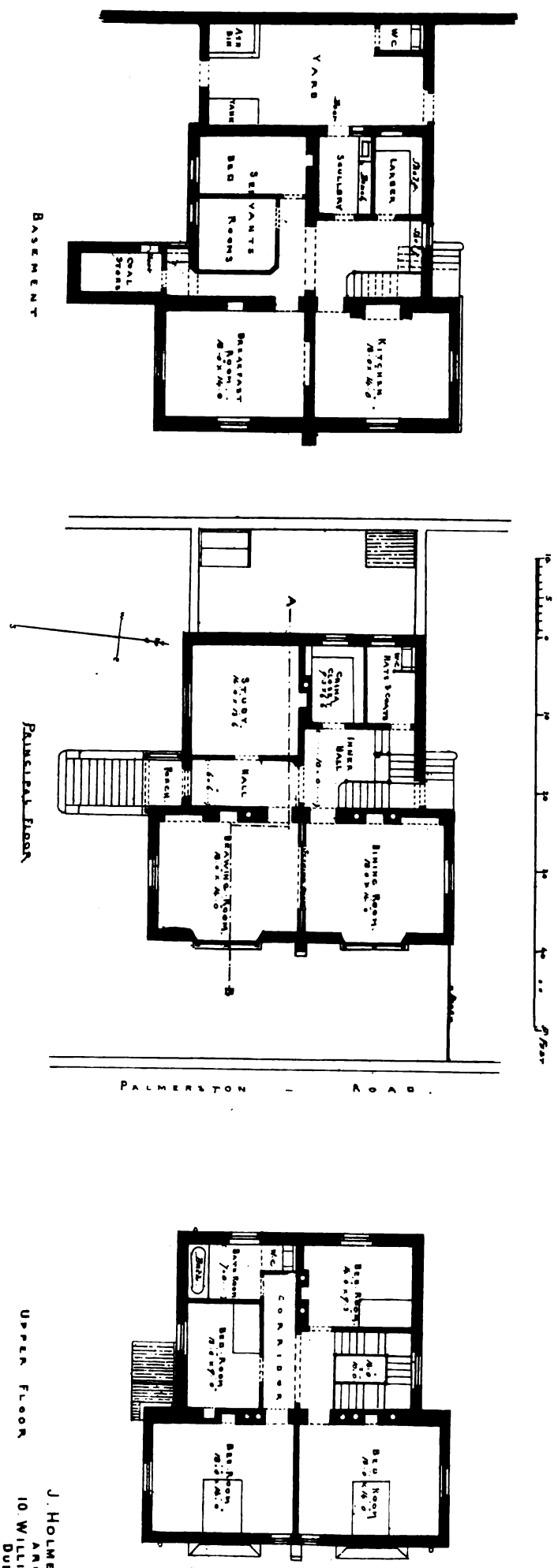




SECTION AT A.B.

FRONT ELEVATION

SIDE ELEVATION



BASEMENT

PRINCIPAL FLOOR

UPPER FLOOR

J. HOLMES  
ARCHT.  
10, WILLIAM ST.  
DUBLIN.

PROPOSED GLEBE HOUSE AT RATHMINES - DESIGN SUBMITTED IN COMPETITION

Printed by P. & Co. Photo Lith. Dublin



of fire-bricks, the warming the incoming supply of air by passing it around the sides and back of the grate; and, thirdly, by utilising the waste heat from the fire by passing it over pipes or drums through the room above—a system practised in America—thus warming the room; but our author ends in the condemnation of all the methods. He sums up his opinions on open stoves as a method having all the advantages of open grates, with many more besides, and more efficient and economical.

As to slow-combustion or close stoves: these he thinks, as far as efficiency and economy are concerned, are a step in advance of open stoves. He thinks they extract no more air from a room than is absolutely necessary to support combustion, and this can be regulated to any required degree. He says:—"The fuel being burnt slowly, the heat generated from it is passed into the room by the metal of the stove, and not hurried away up the chimney at full speed. A few feet of smoke-pipe will pass almost all the waste heat from the stove (when burning slowly) into the room; and when this is done, there is often insufficient heat to support the up-draught, and the carbonic acid, sulphuric acid, and other products of combustion, will leak out of the top or feeding door, which of course is very undesirable and unhealthy. There is always this danger with these stoves, and it is proverbially caused by their being connected with flues 9 inches square, while the smoke-pipe from the stove is only 8½ or 4 inches in diameter, and the waste heat is not sufficient either in bulk or temperature to support the up-draught in so large a flue."

Our author is not in favour of gas stoves at all; he considers them more expensive than open grates, and they are otherwise very unhealthy. The plan of warming rooms by gas, he considers the most wasteful that could well be proposed.

The most perfect of all systems of heating he considers to be the hot-water system, and he produces sound arguments in its favour. On the score of comfort and economy, in our author's opinion, everything is in its favour—no steel grates, fenders, and fireirons to polish, no dust and ashes to remove, or coal to carry upstairs, and less dusting throughout the house. If the people of these countries are content to do without the sight of the old "cheerful fire" in their grates, and can be convinced that they will feel more warmth for their bodies, and more pure air to breathe by the adoption of the hot-water system, why, they could not do better than adopt our author's suggestions. We must say we ourselves are advocates to a certain extent, and under certain conditions, of the hot-water system, and we trust that it will receive all the attention it merits, not only on the head of its being applicable for conservatories and greenhouses, but in relation to its use in public and domestic buildings. We recommend the perusal of our author's little volume to the general public, or all who wish to know in detail what we have only space to indicate.

The author's final chapter on ventilation, though it contains nothing very novel, yet the subject is clearly treated. He considers that with the hot-water system the ventilation can be brought to a much greater perfection than on the old open-grate system. The author's theory or definition of ventilation is "that we shall remove the impure air from the room at a part of the room where the impure air is, and replace it with fresh air from outside in such a manner and quantity, and at such a temperature, that the occupants shall not feel the change." This is not a novel definition, but it is simply and clearly put. Our author goes on to show that the open grate does not fulfil the conditions or remove the vitiated air from the room, and that the impure air occupies the upper part of the room, a part the open grate has no power over. "The open grate merely exhausts pure fresh air from the lower three or four feet of the room; air which has only just come into the room under or around the door or window, and which, when in, makes straight for the chimney throat." Though

this air, he says, is never long enough in the room to get contaminated, being in at the door and away up the chimney in less than ten or twelve seconds, yet we are of opinion that it is often too long in the room and often does get contaminated, and greatly contaminated under different domestic circumstances of humble life and living. In churches, concert rooms, theatres, and other public buildings, the hot-water system could be generally utilised, we think, with advantage.

After speaking of the introduction of a body of cold air through a 6-inch pipe into a large public room, our author shows the way it should be heated and warmed. He would make the air pass through some fine wire gauze, say 80 holes to the inch, then its incoming would not, in his opinion, be felt 8 feet away; and, were it warmed to 55 degrees, it would not be felt at all. "The gauze breaks up the stream of air in the same way as a rose on a watering-pot breaks up the stream of water; and the smaller the stream the air or water is broken into, the less they will be felt. All that now remains is to warm the incoming air to a suitable temperature by passing it around hot water pipes, and you can introduce as much as you like into the room and no one will feel it. You can even change the entire atmosphere of a room or theatre in this way three times in an hour without difficulty, and, barring the fact that people breathe comfortably and have no headache, no one would know that fresh air was being admitted at all."

Our author discourses very enthusiastically on the subject of ventilation in connection with the hot-water system, and we cannot deny but he has scored a few good points in its favour. We thoroughly agree with him, too, in much of what he has written about our old-fashioned open grates, and the evils that are (as yet, at all events) inseparable from their use.

*A Compendium of the Acts referring to Loans, as obtained through the Board of Works (Ireland).* By P. H. Bagenal, Esq., Barrister-at-Law. Dublin: Hodges, Foster, and Co.

In this brochure the author has in clear and concise words given the substance of the various Acts of Parliament passed since 1831 with respect to Loans for Public Works, Drainage and Land Improvement, &c. To those who purpose seeking loans from the Board of Public Works for any of the objects specified, this handy-work will give every assistance. For the drainage and improvement of land and the reclamation of our bogs we would desire at present to know of numerous applications for advances. We are aware that complaints have been made as to the tedious process heretofore of getting loans, but we believe that many of the difficulties have been removed. An intending borrower, with Mr. Bagenal's book by him, can have but little trouble. The author modestly terms his work a "small contribution to legal book-making." It might strictly be termed a "mulum in parvo."

## LAW.

*A Grand Jury v. the Board of Works.*—The grand jury of the County Donegal, upon the report of their surveyor at last assizes, directed him to proceed against the Board of Works (in the Moville Boat-House case); and Mr. Harte, County Surveyor, as complainant, with Mr. Martin, solicitor to the grand jury, appeared to prosecute at the petty sessions on the 6th ult.

The defendants, Messrs. McClelland and Co., builders, of Derry, and contractors for the new coastguard station at Moville, were charged with the separate offences of having built a house within 30 ft. of the centre of the mail car road; also with having built a wall thereat; also with having altered the fences on the east side of the said road; also with having done the same at the west side of the said road; also with breaking up the surface of the road or footpath, all at Carrownaff, in the Co. Donegal.

Mr. Martin said he wished to explain that these summonses were brought with very great reluctance,

but in vindication of a principle which could not possibly be passed over. At the last assizes Mr. Owen and Dr. McCay, solicitor, attended, but no attempt was made to show that these things which would be proved to have been done were trivial; and, though it might appear that not much harm was done, still, if the Board of Works were permitted to do these things without referring, as the law required them to do, to the grand jury or to their county surveyor, every resident or poor man in the county could insist upon his right to do the same, to take away the fences, and build boat-houses all the way along this road; and the court would see there was a very serious principle involved.

Mr. Franklin, of the Board of Works, wished at the outset to say, upon the part of the Board, that they had done these things, and admitted their having infringed the letter, but, as they thought, not the spirit of the law, and they were ready to do anything they could to meet the case that was practicable. They were, unfortunately, obliged to comply with certain requirements of the Admiralty.

Mr. Martin expressed his pleasure at being met in this way, and could only say that, if this had been done before the Grand Jury, matters might have been different, and this unpleasant course saved.

Mr. Harte expressed himself similarly, and, having been sworn, gave formal evidence of the several matters charged in the summonses. He produced a plan, and read a copy of the original presentment made by the Grand Jury, by which "a quickset fence" was specially provided to be put at this place, and explained that it was thus designed to the exclusion of any other fence or building there.

After some further discussion on either side, the solicitor to the Grand Jury said he was quite satisfied with a small fine, as the amount was immaterial to the Grand Jury; but he must press for costs, as the Board of Works, by their acts, had put the Grand Jury to considerable expense.

Some discussion took place as to the effects of the words of the Act, Mr. Martin pointing out that a fine of 10s. a week followed the conviction for every week after it, until the house was pulled down.

The Court then fined the defendants 1s. and £1 costs in each of the five cases—£5 5s. in all.

## CONSOLIDATED NISI PRIUS COURT—May 8.

*Jones v. Lambert.*—This was an action by Mr. John L. Jones, upholsterer and house agent, St. Stephen's-green, to recover £236 for the papering and painting of the residence of defendant at Font-hill, near Rathfarnham. Defendant lodged in court the sum of £142 in discharge of the claim. Defendant's case was that the sum lodged in court was more than sufficient to pay for the work done, and that such portions of it as had been redone had to be so in consequence of the very unsatisfactory state in which the work had been completed by the men employed by plaintiff. Messrs. Sibthorpe, Dobson, and Panter deposed to the nature of the work executed by plaintiff, and expressed an opinion that the sum lodged in court was sufficient to pay for everything done. The two first-named witnesses, allowing the prices charged by plaintiff for the room paper, stated that £100 was in their opinion sufficient to pay for the work done and leave a fair profit. The foreman of the jury asked could they find for less than the sum lodged in court, and his lordship having replied in the negative, they returned a verdict to the effect that the sum lodged in court was sufficient.

## GLEBE HOUSE, RATHMINES.

THE illustration in our present number is another design for the proposed Glebe House at Rathmines, submitted in competition by Mr. J. Holmes, architect. The house was intended to be faced externally with red stock bricks on a granite base. The particulars furnished to architects by the select vestry stipulated for folding-doors between the two principal rooms, and the adoption of a basement storey was also implied, although not specially asked for.

The same architect also sent in a second design of a plainer character.

It has been stated that the tenders supplied by builders for the plan adopted by the select vestry, exceed, by a considerable sum, the amount at their disposal as named in the instructions. It may fairly be asked, Will they fall back on some of the other designs; or, if they do not, will they render themselves liable to the architects (if any) who furnished plans that could be carried out for the sum named?

## ANENT THE BODY CORPORATE.

It is neither extortionate nor unreasonable for those who pay away money to expect even a slight return for their expenditure. We could lay our hands upon a number of individuals who have even gone further than the mere indulgence in expectation, and this without inconvenience to ourselves. Unfortunately, however, there is an exception to this, as there is to almost every other, rule. The citizens of Dublin, in this instance, occupy the coveted position of the traditional exception, and receive in return for their easy-going good nature a merciless fleecing. The City Fathers are at least above reproach in their character of social poulticers and the ratepayer creditably represents the pigeon, who, as the farce proceeds, is plucked as cleanly as a cannon ball. Nor is a protest ever ventured while he is being thus ruthlessly stripped of his plumage. It is our pleasure to inquire whether one in every five hundred of the great taxed has ever perused that most pleasing annual addition to our light literature, "The Accounts of the Treasurer of the City of Dublin." It would give us heartfelt delight to see an index of the number who escape permanent insanity by endeavouring to elucidate the mysteries of the Borough Fund appended to the above interesting volume. We have tried to obtain even a ray of information from it, and feel no sense of shame in admitting our inability to do so. "The Treasurer of the City of Dublin" may be an exceptionally "smart" individual, but we ask him honestly whether he expects us to believe him capable of understanding one-third of that for which he is responsible? He has written a bright thing or two in *Belgravia*; he has enlivened the evergreen pages of *Young Ireland*, but his city accounts show in a mild way what his facile pen is capable of. The items for "Scavenging and Watering" in the *Improvement Fund* are unusually high when compared with those of other populous towns—high when we remember that literally no result is obtained by the outlay. That the money has been expended upon the cleansing of the streets, there is hardly any doubt, but the manner in which the work has been performed reflects seriously upon those responsible for its carrying out. What is our return for the expenditure given in the Treasurer's report? Absolutely nothing! This "burning question," so often asked and so frequently disregarded, has been put in a somewhat abrupt manner by Mr. R. Gerrard, of Inns-quay; and the indolent municipal authorities must, for once, fair and full deliverance make at the Commission before which they have been returned for trial.

The Corporation of the city, headed by that blended type of the natural and the artificial dignity of man—the Lord Mayor,—have too long pursued their way down the "ringing grooves of Change," sacrificing the best interests of the citizens to the indulgence of individual cupidity. If personal demands have created the supply, the sooner the "Reformed" Corporation is "reformed altogether" the better. It is rather hard if the ratepaying portion of the community is, in every case, to be looked upon only as a lamb ready for immolation on the altar of society—especially hard when we consider the class of society afforded by the Dublin Corporation.

Mr. Gerrard has had to pay for the state in which he kept his footway, and he now asks (and not without good reason) whether the Corporation are justified in forcing him into the thorny paths of sanitary transgression? Mr. Gerrard is not one who clings to old precedents, and never seeks to establish a new one. Corporations have long been famous for a general likeness that even consanguinity cannot always attain, and it has fallen to the lot of Mr. Gerrard to act in direct opposition to the usage established by Solomon,\* and give us something new in the shape of a bird's-eye view of the entire body corporate in the dock! He has taken upon

\* Not the gentleman who repudiates trade connections.

himself to prove that, after all, a lord mayor is but a man, and therefore liable to err; that aldermen are merely flesh and blood, and partake in their moral—save the mark!—as well as physical qualities, of the common nature of the stock from which they spring. He has divested them of that official capacity—that species of municipal dictatorship—that gives them distinctness, peculiarity, and prominence. We will see them out of their finery, when they appear as much like other people, with as little of the picturesque about them as the three knights of the civic pageants of old when their polished armour was taken off. In their official habits they resemble no body; their very mothers would not know them. Let us hope, therefore, that they will stand undecorated in the dock in full possession of the vulgar stare with which their presence is certain to be greeted. Let them stand there, say we, if only in contradiction to the absurd belief that good living necessarily constitutes good lives.

The Corporation reverses in its mind the ancient axiom that "a contented mind is a continual feast," for with it a continual feast is the only source of a contented mind, to obtain which they pass the call of duty without heeding it, anxious only lest the call of the dinner-bell might chime in vain. Whether this amendment will find favour among the gentlemen who compose the Commission, is at present the only cause of our solicitude, hoping, as we do, that the result of Mr. Gerrard's movement may be only the commencement of a general awakening, which will render the City Hall unpleasantly warm for its present inefficient occupants.

OLYMPUS.

### THE INSTITUTION OF CIVIL ENGINEERS OF IRELAND.

THE closing meeting of the members of this institute for this session was held on the 5th inst. in the Museum Buildings, Trinity College. Mr. Alexander McDonnell, C.E., presided. Mr. Francis G. Stoney contributed a paper "On the Construction of Large Sluices for Drainage, Irrigation, and Navigation." He described, with the aid of photographs and diagrams, certain appliances which he had experimented upon in India during the past six years. The chief objection to weirs and sluices was the obstruction they caused to navigation. One of the plans which he proposed was a simple sluice, which could be worked with the greatest ease with the aid of rollers, and which would present only a slight impediment to navigation.

A discussion followed, in the course of which Mr. Lynam said that he considered the form of sluice proposed by Mr. Stoney was the simplest and best he had ever seen. It would be a great benefit in the drainage of the Shannon. He would have great pleasure in recommending it to the proprietors and landowners. The paper was referred to the council for publication.

Mr. William Greenhill was elected a member, and Mr. Michael Murphy, jun., as associate.

### LARGE AND SMALL FARMS.

#### SEVENTH ARTICLE.

By large companies engaging in farming, a greater body of persons become interested in land. Hitherto, because land is a description of property which cannot run away, and is easily found, it was known to pay more heavily the taxes; whereas, other kinds of possessions, easily moveable and more liable to be stolen, do not bear the share which they ought to pay for protection. Again, the produce of the land is taxed, (and is not freed from the trammels which fetter the employment thereof) by the Excise and Customs. The growth of tobacco is prohibited, and the corn of the country is taxed if employed in brewing and distilling, and even there is no free trade in hops. By a larger body of persons interested in the soil,

a greater weight would be brought to bear on the assimilating the taxes on all descriptions of property. It is admitted that hitherto the policy of governments has been to encourage small farms and to create tenant proprietors, but the experience of all countries shows the folly of this course, which leads to planting on the soil a body of discontented and often ignorant proprietors who had not the means nor the knowledge to farm, so as to get from earth the largest crops. It is admitted that to induce persons to consider and adopt a new system is generally an uphill work; every improvement has met opposition, and these attempts to encourage large farming by companies will perhaps meet many opponents, as they necessitate sometimes the removal of some of the inhabitants who may be unwilling to become well-paid labourers instead of (as they are at present) wretched paupers. Obstacles should not prevent changes, especially if it can be proved that a larger quantity of food can be produced at a cheaper rate to the consumers, and larger wages be given to better educated workmen and healthy habitations will arise for these improved labourers. The market gardens in the vicinity of great towns shows that with a greater employment of manure and by more frequent stirring up the soil, more can be produced. The shelter afforded to cattle, and the house feeding, will create a larger quantity of manure, and which will feed the cattle in the house, and it will require more labour for the production of food, &c. \*

### THE ROYAL HISTORICAL AND ARCHÆOLOGICAL ASSOCIATION OF IRELAND.

At the last quarterly meeting of this body several new members were elected, and a number of books and publications presented to the library were laid on the table.

Mr. Prim, on the part of Mr. Samuel Atkin, Whitefort, Wexford, presented to the Museum a very fine stone celt, which had been turned up by the plough on Mr. Atkin's farm, situate midway between Wexford and Enniscorthy; also, on the part of the Rev. Martin A. Holohan, of the Franciscan Convent, Dublin, a silver threepenny of George III., 1763.

#### INTERESTING SILVER CUP.

The Rev. James Graves exhibited a cup which was traditionally stated to have been presented by Queen Elizabeth to Dr. Jonas Wheeler, when he was nominated Bishop of Ossory. The bowl was a cocoa-nut shell, on which were the royal arms, and the initials E. R. The foot and cover were of silver, and were connected with each other by bars of silver, extending down the bowl. On the rim beneath the cover, which opened with a hinge, is an inscription, in cursive letters of the last century, being an addition then made:—

"Her Majesty Queen Elizabeth, of Glorious Memory, gave this Cup to the Right Rev. Dr. Jonas Wheeler, when he was promoted to the See of Ossory. Mrs. Sarah Wheeler, relict of a Descendant from him, daughter to Archbishop Vesey, and sister of Bishop Vesey, presented it to Dr. Richard Pococke, Lord Bishop of Ossory, who leaves it to his successors, Bishops of Ossory."\*

The family of the late Bishop of Ossory, had handed over the cup at his decease, and it was at present in charge of Mr. Kough, the registrar of the diocese, who had permitted him (Mr. Graves) to exhibit it to the meeting. He had got it photographed, and would have it engraved for the Association's "Journal," as it was interesting alike as to its form and historical associations. The Wheeler family, now represented by Sir Charles Wheeler-Cuffe, Bart., was founded in Kilkenny by

\* The editor of the *Kilkenny Moderator* appends this note, in reference to the silver cup, in the report of the proceedings in that journal:—"There is obviously an error in the inscription on the cup. Jonas Wheeler was not appointed to the See of Ossory for ten years after the death of Queen Elizabeth. The appointment was made by James I. (to whom Ware states the bishop was chaplain), in 1613. Dr. Wheeler had previously been Dean of Christ's Church, Dublin, from March, 1594; but if the date of the 'hall mark' has been read correctly, the presentation by the queen could scarcely have taken place even on the occasion of his leaving England for the Christ Church deanery. However, if he was chaplain to the queen, he received it from her long previously. The interest attaching to the cup, then, can have no connexion with Bishop Wheeler's nomination to the See of Ossory, but from the fact of its having belonged to him, and evidently having been a royal gift, as well as to its subsequent presentation by a member of his family to Bishop Pococke, and its having been arranged by the latter prelate to descend to the subsequent bishops of Ossory for the time being."



Bishop Wheeler. Bishop Wheeler was said to have been Chaplain to Queen Elizabeth before he came to Ireland. The "hall mark" on the cup, showed its date to be 1565.

#### THE ANCIENT CORPORATION OF ATHENRY.

An ancient seal and mace of Athenry, Co. Galway, were exhibited. The mace was of very singular shape, being a clenched fist, couped at the elbow, cast in solid brass, and mounted on a short handle; it measured about five inches in the metal portion, and the present handle was about seven inches long. It was a most effectual weapon, and as such unlike the conventional "bauble" into which the maces of other corporate towns had degenerated. The seal bears a castle, from the battlements of which arise two impaled human heads. These heads are very markedly cut, bearing all the characteristics of the Irish mode of wearing the hair and beard. No local tradition points to the reason of these ghastly trophies appearing on this most curious civic seal, but history records two great battles having been fought here in the 13th and 14th centuries between the Irish and the English, which may well have given cause for this singular device. Athenry, or "the Ford of the Kings," was the name of a ford on the streamlet which constituted the western boundary of Hymany, the principality of O'Kelly, in the present County Galway. The castle and town afterwards built on this spot by the Anglo-Normans, was anciently called Anry, a phonetic form of the Irish name, and so it appears on the seal of the town. It is, however, better known as Athenry. One of its castles is said to have been built by King John, but he never crossed the Shannon. That Athenry was a fortified town of some importance before the middle of the 13th century, is evident from the fact of Jordan de Exeter, Sheriff of Connaught, and the English settlers had found it sufficiently strong to be occupied, when, in 1249, "the Irish nobility of Connaught went to Athenry to prey and spoil that toun" (as we are informed by MacGeoghegan), on Lady Day in harvest. The English sailed out of their fortifications, and the result of the battle was a total defeat of the Irish, the death of one of their leaders, Hugh son of Hugh, son of Cathal Crovderg, King of Connaught, and many other chiefs. This victory gave confidence to the settlers, and in 1310 a murage charter was granted to the town. It is probable, in allusion to the wailing of the town and slaughter of the Irish, that the seal was designed; but it may refer to a second still more famous defeat suffered by the Irish at Athenry in 1316, when Pheilm O'Connor, King of Connaught, and Teige O'Kelly, King of Hymany, and a long list of chiefs were slain, and the Irish of Munster, Meath, and Connaught suffered so much that it led to their subjection to the English rule. Perhaps, indeed, we may be justified in assuming that the two impaled heads represent those of the two Irish kings alluded to. The legend round the verge of the seal is—"Sigillum Communitatis dehenry." Its age was proved, by the form of the letters as well as by its general character, to be the 13th century.

#### INTERESTING MANUSCRIPTS.

A manuscript History of Ireland, from the earliest times to the reign of Queen Elizabeth was exhibited. This volume, together with similar MS. histories of England and Scotland, were announced as being for disposal by their present owner.

#### CINERARY URNS.

Dr. Martin, Portlaoise, sent a drawing of an elaborate ornamental fictile vessel, found in the Parish of St. Mary's Ring, near Dungarvan, Co. Waterford, which stood about four inches high, and was about the same in diameter at its widest part.

Mr. Richard W. Banks, of Ridgbourne, Kingston, England, sent a drawing and description of two urns of baked clay, one much smaller than the other, found at Clonakilly, in the County of Wicklow, in 1820. The larger vessel had contained calcined human bones; the smaller, a dark coloured mass, which evidently had once been fluid.

#### PAGAN CEMETERY.

Mr. Wakeman, Enniskillen, sent an account of the discovery of various primæval sepulchral remains on the lands of Finner, between Ballyshannon and Bundoran, pointing it out as the site of a great pagan cemetery. A cairn had been opened, in which a chamber was found containing some bones, amongst which were several skulls, but unfortunately these had been broken to atoms by a number of roughs who had assembled on the spot before any intelligent person was made aware of the "find." There were also on the site a circle of stones, a "giant's grave," and a much-disfigured cromlech.

Mr. E. P. Shirley sent an impression from a piece of bronze, about five inches long, by one wide, orna-

mented with figures apparently representing griffins, found amongst the rocks at Lough Fea, in the Barony of Farney in the Co. Monaghan, last summer.

#### THE IRISH LANGUAGE.

Mr. P. M. Egan called attention to the propriety of an effort being made to urge on the Commissioners of Education the desirability of giving the same encouragement to the National School teachers to instruct the pupils in Irish as in French and Latin. He suggested the passing of the following resolution:—

"That in order to raise up scholars to translate the priceless Irish MSS. and to preserve the Irish tongue from being entirely lost, we the members of the Royal Historical and Archaeological Association of Ireland, strongly recommend to the Commissioners of Education the importance of paying for the teaching of Irish by the National School Teachers, similar to Latin and French."

Mr. Graves said he would second the resolution with great pleasure. He believed what was suggested would not lead to the preservation of Irish as a spoken language amongst the people, but rather the reverse; however it would tend largely to its preservation for literary purposes, which was most desirable, independent even of national sentiment. The importance of the Celtic languages was now fully recognized by scholars throughout Europe.

The resolution was adopted unanimously.

Amongst the other matters brought before the meeting, was a paper by Mr. W. F. Wakeman, "On certain markings on rocks, pillar-stones, and other monuments, observed chiefly in the County of Fermanagh." Mr. Wakeman sent full illustrations of the markings on the monuments. This paper was deemed a most valuable contribution; it was ordered to be printed in the Association's "Journal," with accompanying engravings.

The Association adjourned to the first Wednesday in July.

#### MICHELANGELO.\*

(Continued from page 125.)

In my last lecture I asked you to dwell with me on some of the most prominent passages in the life of the great Florentine, Michelangelo. We left him, if you remember, at the court of Pope Paul III., an ardent admirer of his genius, if a somewhat severe taskmaster of his energies.

I propose to-night to consider Michelangelo as an architect. We have seen how his fame had grown as a sculptor and a painter, and we know how decided were his views as to the necessary combination of the three arts. It was reserved for the old age of this splendid veteran to furnish a practical commentary on his artistic convictions.

It was Michelangelo's lot to have greatness thrust upon him. He delighted in the title of sculptor. Sculpture was his first choice, and by it he gained his earliest laurels. When the painting of the Sistine Chapel was pressed upon him, he resisted. He declared he was not accustomed to painting. Indeed, he seems to have been almost pleased when he found an efflorescence exuding from the walls, which threatened to destroy his work. "See," said he to the Pope, "what is happening: I told you I was not a painter." In like manner, he did not seek architecture. When the office of architect to St. Peter's was offered to him, it was only accepted with reluctance. Although an admirer of architecture, Michelangelo was not willing to accept the heavy responsibilities of an architect, and but for the urgent entreaties of his friend and sovereign, would have declined the task. When, at last, he was prevailed upon to consent, he made the condition that he would receive no salary, and had a clause inserted in the deed of appointment declaring that he performed his office for "the love of God."

There was, I think, good reason for the reluctance of the artist. Accustomed to freedom of idea and execution, he was to learn under what difficult conditions architects have to work. No form of art is so much fettered. Circumstances of time and place, the amount of funds available, the parsimony, whims, and interference of employers, affect the plans of the architect to an extent unknown to the painter and the

sculptor. Arbitrary rules of fashion regulate the public taste, and seek to make the architect their slave; so that it may almost be said, at least in modern times, that no important building is ever executed for which the architect is fully responsible.

Michelangelo was now to experience all these difficulties, and he often wished, we may be sure, for the lost freedom of his earlier life. He had met with an accident from a fall on his scaffolding while painting the Pope's Chapel, and his increasing infirmities had led him to decline further commissions in sculpture, when he was appointed architect to St. Peter's in 1546, in the seventy-second year of his age. Notwithstanding the advance of age, the period through which Michelangelo had just been passing was, perhaps, the brightest in the life of the great artist. His last years at Florence had been full of bitterness and gloom. We have seen how he imperilled life and health by his labours in the Laurentian Sacristy, and how, before his final departure, he seemed well-nigh broken-hearted.

At Rome, on the contrary, he seems to have recovered both health and strength. His fame was recognised by the Pope, and his reputation gave him a pre-eminence which none could now dispute. Domestic sorrow, indeed, fell upon him, as it does upon all, for at this time he lost his father and brother, to whom, in spite of some past misunderstandings, he was sincerely attached; but, in spite of these and other troubles, Michelangelo was now probably happier than at any previous epoch of his career.

His proud nature sought no friendships. He says, in one of his letters, "I have no friends; I need none, and wish to have none." Almost terrible to us is this picture of the solitary old man, alone in his conceptions of the supernatural and the sublime, as we see them depicted in the figures of the sibyls, or in the woes of the condemned, in the awful representation of the "Last Judgment."

Accustomed to misrepresentation, and to the petty accusations of little men, he treated them with the contempt they deserved. Such was the mode in which he dealt with Pietro Aretino, who assailed the treatment of the "Last Supper" in a spirit of censorious prudery. This man, shameless, venal, and intolerably conceited, did indeed succeed in troubling the mind of the great master, by his criticisms, and insinuations, as an insect may vex a noble lion; but, after a time, Michelangelo treated him with the disdain which he deserved.

In spite of the loneliness of his self-sought solitude, there was, however, one friendship which Michelangelo admitted, and to which he clung.

If you will think for a moment of the characteristics of his works, you will form an idea of the character of the man. You will find little in them of the softer influences. The "Sybils" are mysterious beings, with unknown capacities for good or evil; and in the "Last Judgment" the woe of the wicked is the prevailing theme.

Art had been his sole mistress, and in it he had sought power, grandeur, and sublimity, rather than the refinements of beauty.

He was now to experience, for the first time, something of the charm which can be exercised by female influence, combined in this case, with high rank, refined intellect, and personal attractions. Had he yielded to some such influence in earlier life, his works might possibly have gained in grace, without losing in genius, but it was not until the sixty-fourth year of his age that Michelangelo commenced his friendship for Vittoria Colonna, a widow of forty-eight.

I have said friendship, for such indeed it was; a friendship of heart and soul; a fellowship of kindred minds; any softer feelings, if they existed, were repressed, and it was only when death had robbed the lone old man of his happiness in 1547, that in a parting sonnet he allowed himself to expatiate on the earthly beauty now lost to him for ever.

\* Professor E. M. Barry's third lecture at Royal Academy, March 8th.

The lady was an accomplished member of one of the noblest of Italian families, and of a deeply religious cast of mind. Her influence on Michelangelo was great, and he has recorded his obligation in verse, to one who had taught him how "to tread, by fairest paths, the way to heaven."

It was now a time of religious speculation. Luther's preaching had aroused echoes, even under the shadow of the Vatican, and many young and ardent natures were inquiring, like the Roman governor of old, "What is truth?"

Vittoria Colonna seems to have been the hope and leader of one of the reforming coteries of the period, for not long afterwards a young Florentine was burned at the stake, one of his alleged crimes being that he had once belonged to the circle of Vittoria Colonna.

(To be continued.)

### THE ROYAL IRISH ACADEMY.

A GENERAL meeting of the Academy was held on Monday evening. Sir Robert Kane presided. Papers were read by the secretary for Professor M'Nab, M.D., "On Experiments on the Movement of Water in Plants," and for G. H. Kinahan, Esq., "On the Microscopical Examination of Ingenite Rocks." Papers were also read by Professor Leith Adams, M.D., "On a Cervical Vertebra of an Undescribed Species of Saurian, from Prospect Island;" and by W. H. Mackintosh, Esq., B.A., "On a Malformed Corona of Echinus Esculentus." The papers were referred to the council for publication. A letter was read from Mons. Adolph Pictet, of Geneva, acknowledging the honour conferred on him by the Academy in electing him an honorary member. Among the recent donations to the Academy are: a presentation copy of part I. of the *facsimiles* of the National Manuscripts of Ireland, from the Lords of the Treasury; and twelve historical miniature portraits from the Rev. J. H. Jellett, S.F.T.C.D. The thanks of the Academy were voted to the donors. Alexander Lane, Esq., M.D., Ballymoney, was elected a member of the Academy.

### ANENT THE CORK LUNATIC ASYLUM PLANS.

THE plans approved of by the board are now rejected, owing, it appears, to some alterations made in them by Mr. Atkins, to whom they were referred for revision. A rather unseemly discussion on the head of these plans took place at the April monthly meeting of the Cork District Lunatic Asylum Board. Until we learn further particulars it is, perhaps, better to say but little, as we do not wish to prejudice the case as it stands between Mr. Edwards, C.E., and Mr. Atkins. The annexed letters of the two gentlemen most concerned will possibly be sufficient for the present to afford an insight to the quarrel. Mr. Edwards handed in the following report as to the plans for the proposed new buildings:—

GENTLEMEN,—I regret being unable to report any satisfactory progress in connection with the new buildings. I attended each day when asked to go through the plans again, as requested by you, and the various suggestions as agreed upon were noted. During this inquiry a matter came under my notice which I considered ought to be brought before you. I found upon this re-examination that one of the plans, No. 17, which had been examined and signed by Dr. Eames and myself, and subsequently laid before you, and signed by your chairman, on the 13th March, 1874, had some important parts as regards the stability of the structure completely erased. This was done prior to last January, when I had tracings made of all the original signed plans, for the purpose of taking out the quantities. These tracings will show that certain struts under the longitudinal beams of the dormitories, which were upon this plan, No. 17, when I originally examined and signed it, have since been erased, but were replaced in pencil between the time I had the tracing made and when I saw them with Dr. Eames on the 18th ult. I consider it necessary to call your attention to this circumstance, in order to show how utterly useless it is for me to examine these plans if they are allowed to be altered afterwards by the erasure of important parts. I must respectfully but firmly decline any responsibility in connection with the plans, if such proceedings are per-

mitted. I consider it an extraordinary thing that plans, after undergoing a close scrutiny on the part of Dr. Eames and myself, and being signed by us, subsequently laid before you, signed by your chairman, and approved by the Board of Control, should be altered in the smallest particular, to say nothing of an important element in the structural strength of the building being erased. Why these struts should have been afterwards re-introduced in pencil has not been explained. Upon attending yesterday at the asylum by appointment to meet Dr. Eames and Mr. Atkins—as I understood to examine the revised plans showing the suggestions lately made—I was surprised to find that the original signed plans of the store buildings and the airing yards have been altered and erased to meet these suggestions, instead of the new plans or tracings being made to show them. Upon a very recent occasion, when some comparatively trifling erasures were made upon one of those documents, Dr. Eames and myself protested most strongly against any interference with them. The plans produced yesterday were so altered by additions to and erasures from them as to be unrecognisable, save by the signatures attached. It is now impossible to ascertain from them what the original approved designs were. This is too serious a matter to be passed over without calling your attention to it, and is one to which I cannot give my assent.

O. C. EDWARDS.

Mr. Atkins thus replies:—

39 South Mall, Cork, April 1, '75.

DEAR SIR,—You will please mention to the governors that I have not been able to comply with the resolution passed at the last meeting, that "I should revise the plans and specifications of the new buildings, so as to enable Mr. Edwards to take out the quantities accurately," as I received a letter from you the day after requesting me to go to the asylum on the 9th of March "to proceed with an examination of the plans with Mr. Edwards." As certain changes have been proposed in the plans nothing of course could be done as to preparing them for contractors. These proposed alterations were subsequently laid before the House Committee, who I understood to have agreed to recommend them to the governors for adoption. As the committee expressed a wish that as little time as possible should be lost, and as I have to make entire new drawings of two of the sections, I could not have anything ready for the governors at their meeting to-morrow were I to make new drawings of the entire. So, thinking it, under the circumstances, for the best, I altered the drawings of one of the sections into which the plans have been divided, the "store building" having accurate tracings of these, showing what they were. I cannot call to recollection having been present at the committee when anything was mentioned about altering the plans. In one of the sections, "airing yards," a slight alteration was made in pencil at the ends of the ball alley walls. There has been no other change in any of the original plans, except one in section of "Enlargement" made at once, after the plans were sent down from Dublin. This section differed from the others, inasmuch as no specification or regular working drawings accompanied the general plans of it; and Mr. Wilkinson, when approving generally of the plans, alluded to this. Accordingly, when they were returned to me, to have Mr. Wilkinson's suggestion carried out, I made the specification and working drawings of this section, and while doing so it struck me that the manner of giving additional support to the floors by struts might be dangerous for suicidal patients. I thought it better to omit them and substitute iron flitch plates on the beams. This, of course, I fully intended to bring under Mr. Wilkinson's notice, and to take his opinion on the subject, as I consider that these floors can be carried out in a simpler and more economical manner without the use of iron. From the time that the plans came down from Mr. Wilkinson last year until the end of February I did not receive any intimation from the Governors either by resolution, or by letter from you, that they desired the opinion of Mr. Edwards upon them. Should the proposed change receive the sanction of the Governors, I can have the entire of the specifications and the plans completed in a short time, as I have all in a very forward state.

W. ATKINS.

At the board meeting, the Earl of Mountcashell moved the following resolution, which was agreed to:—

"That in consequence of the alterations and erasures made in some of the plans after they had passed this Board and were confirmed by the Board of Control, we can't consider them trustworthy documents and we therefore reject them."

At the last meeting of the board the subject of the plans came on for further discussion, and the question of what remuneration Mr. Atkins was entitled to on the head of his services. Some members were for allowing him 2½ per cent., and others were bold enough to say he should get nothing. We believe it was finally agreed he should get 2½ for the preparing of the plans. As a wind-up, the following resolution was proposed and agreed to:—

"That the House Committee be requested and authorised to make a final settlement with Mr. Atkins for the plans he prepared for the alterations in the Asylum; and that they shall have the assistance of our Law Agent in the matter. The Governors reserve for future consideration the appointment of an architect to superintend the proposed new works."

It is unnecessary for us to traverse some severe and odd statements made by members at both board meetings, but we will simply add that there were several utterances which no one could endorse. Mr. Atkins considers that he has been badly treated, but he admits that it was an error of judgment to interfere with the plans, and he regretted having done it, but he thought at the time he was doing what was for the best. The chairman and other members of the board consider Mr. Atkins's letter is no answer at all to the report of Mr. Edwards. We desire further information upon the subject than what appears in the engineer's and architect's letter or what has transpired in the proceedings of the board.

### SANITARY AND OTHER NOTES.

At a meeting of the Corporation on Monday, the Lord Mayor drew attention to the disgraceful condition of the out-offices at the Mansion-house, and advocated their demolition. The matter, like other urgent matters, after a wrangling discussion, was referred to a "committee of the whole house," who will sit upon it as they have sat and are sitting upon the Liffey. Councillor Long gave notice of his intention to move the following resolution, which partly embodies what we have for years advocated—the free opening of our public squares for the people. "That the Right Hon. the Lord Mayor, Right Hon. the Recorder, the Treasurer, the High Sheriff, and the Representatives of the City, being the *ex officio* commissioners named in the Act of 1814 (in conjunction with the other commissioners) for the management of St. Stephen's-green, be respectfully requested to consult with the elected commissioners of the Green upon the best and least objectionable means of rendering the Green more useful to the public as a promenade."

KINGSTOWN.—At the monthly meeting of the Commissioners, the surveyor reported that 56,000 gallons of water were daily used in excess of the stated supply, and the meter was now in working order. Directions were given for having the key of the chamber entrusted to the joint care of the Town Clerk and Surveyor, who are to furnish weekly returns of the index to No. 2 Committee. Mr. Lagan directed attention to the very defective manner in which the lighting of the public lamps was conducted, and to the complaints respecting same. After some further conversation it was decided to take steps towards improving the system of street lighting.

BLACKROCK.—At a late meeting of the Commissioners, a discussion took place on a letter from Mr. John Pluck, contractor, stating that he had been served with a summons and plaint by Mr. Alfred G. Jones, C.E., claiming £3,000 damages for injury to his property by the construction of a sewer at Queen's Park. The report of Mr. R. A. Gray, C.E., county surveyor, on the works in progress at the People's Park, and on the plans submitted to him for the reclamation of the slob lands, was sent in. Mr. Gray considered a built sewer far superior to a cast iron one. The cost of the iron one would be about £1,963, which, added to the cost of the necessary contingent works, would amount to a total cost of £2,433 10s. The report recommended the lowering of the sill at the outlet near the railway, and other technical alterations; and entered into the sections of the several plans at considerable length. The cost of the stone main sewer would be £1,011 5s. The report was ordered to be submitted to Mr. Barnes, the township surveyor, and a meeting was fixed to take place in reference to the People's Park.

**DROGHEDA.**—At an adjourned meeting of the Harbour Commissioners, the advisability of procuring the advice of a competent engineer, and as to the best and most feasible means of improving the port and harbour was discussed. Ultimately, and after a lengthened discussion, it was unanimously resolved that Mr. Stoney, C.E., of the Dublin Port and Docks Board, be instructed to inspect the bar and river and give his report on the best manner of improving the same.

**NAAS.**—At a meeting of the union sanitary authority the clerk reported that he had received the amended estimate for the alterations proposed to be made in the workhouse chapel. The original one was for £250, which the board considered too high, and it was referred back to the committee, to consult with Mr. Bratt, C.E., on the matter. The present one was for £150. After some discussion the matter was again referred back to the committee. Dr. Sale reported that Mrs. Curtis's pump at Kilmeague was so situated as to produce impure water. The water of the public pump at Kilmeague he also reported as having a bad taste and smell. He considered samples of water from both should be forwarded to Dr. Cameron for analysis. Dr. Tyrrell, Newbridge, reported as follows:—"On the 1st instant, Mr. Colgan, sanitary sub-officer, drew my attention to the filthy state of the edge of the river Liffey, where the main sewers of the town empty themselves. I inspected the place on the above date, and found that during low water, as at present, the entire of the sewage of Newbridge collects along the strand in stagnant pools, from which a most offensive effluvia emanates. I consider this state of things very dangerous to the health of the inhabitants living in the vicinity. I recommend that the county surveyor should inspect the place, and direct as to the best means of running the sewers well into the river." A member objected to the sewage being run into the river as contrary to Act of Parliament, and it was ultimately decided to refer the matter to the county surveyor. The clerk of the union, as executive sanitary officer, reported that a notice had been served on Sir G. Aylmer, Bart., to have a nuisance on his property at Kilmeague removed before the 8th January, which was subsequently extended to the 1st May, but has not been removed. The board directed proceedings to be taken to have the nuisance removed.

**RATHDOWN UNION.**—At a meeting of the guardians of this union, a letter was read from the Local Government Board, stating that the nuisance alleged to be created on Loughlinstown Common by the drainage of the workhouse ought to be abated. The chairman pointed out that this matter had already caused them much anxiety and costs, and that the board were prepared to carry out any instructions which could be pointed out to them relative to the nuisance complained of. A minute to this effect was prepared and passed, to be forwarded to the Local Government Board.

### THE LIFFEY NUISANCE.

THE case of the Corporation against the Port and Docks Board, instituted, we were told, to test or settle the question on which body devolved the responsibility of removing the Liffey nuisance, has ended as might be anticipated. We never in the whole course of our experience heard of so preposterous an action. Peter of old denied his Master, but our modern Peters took to denying themselves in the most brazen manner. We consider the whole proceedings a shameful waste of public money, and the application to have a case stated, another proceeding that ought to be met instantaneously by an indignation meeting of the citizens, and stamped out of hearing. Mr. Macdonogh, Q.C., very fairly opened the case, yet he only proved what all intelligent citizens knew already, that the Corporation were the custodians of the river, and that it is through their chronic indifference and neglect, for years past, that the nuisance has swollen to its present intolerable dimensions. They have wasted several years and some thousands of public money over main drainage schemes, and because they have been justly thwarted and opposed in their endeavours to carry out anything short of a gigantic job, they are trying every device and expedient to worry the public by delays and cross purposes, in the hope that the citizens will at last reluctantly consent to the carrying out of their dilly-dally scheme.

The Corporation's case is a mere paper case, and will be dismissed without any

levy rates, and they act as the nuisance authority of the city, yet they foster more nuisances than any other corporate authority in the kingdom; and when asked to remove or abate them, they plead that the onus does not rest on them. The Port and Docks Board do not construct our sewers, neither are they charged with the duty of providing for their outfall. The pollution of the river between Carlisle Bridge and King's Bridge is something enormous in character and quantity, and for this solely the Corporation are responsible. It would, no doubt, be very pleasant for the Corporation if they could get the Port and Docks Board to do the work of cleansing the river and paying the expense, while the Civic body indulged its fancy to the top of its bent "all the year round" in making mock heroic speeches and moving eternal motions; but the Port and Docks Board, as a distinct body, have no more right to be compelled to cleanse the Liffey above Carlisle Bridge than they have a right to cleanse or water our streets. No doubt they might volunteer a certain amount of help which would not be objected to by the Government, but that is beside the question.

Once more we call upon the citizens of Dublin, now that this case is dismissed, and large costs incurred which they, as rate-payers, will have to pay, to take such steps as may be advisable to put a stop to further costly legal proceedings, for these proceedings are a public scandal, and are not far removed from being criminal in their inception and indulgence.

### CIVIC LYRICS.—No. LXXXV.

#### SERVED US RIGHT.

(A Town Councillor's Song.)

When we began to speculate  
On Water grants and Drainage loans,  
We hoped to show our words had weight,  
And proved it by Welsh paving stones;  
But when we failed by plans and maps,  
And law, to prove that day was night,  
Our former friends laughed out—perhaps  
It only serves these jobbers right!

Yet still our spirits did not sink,  
Though pride and credit were o'erthrown;  
The Liffey still gave up its stink,  
So we went for another loan!  
With engineers and lawyers both,  
We made a spurt to *drain* with might;  
But knocked against the Hill of Howth  
Our heads, and heard, "It serves them right!"

Once more inspired by higher aims,  
In solemn conclave we all sat;  
We pointed to the Clyde and Thames,  
But people said they smelt a rat.  
We went to law then with Old Nick;  
The Court-house did not answer quite;  
We got it hot, and cut our stick,  
And must confess it serves us right!

CIVIC.

### NEW WORKS IN COUNTY MEATH.

A NEW mansion-house and offices have just been completed at Curraghtown, in the above county, for James J. Masterson, Esq., at a cost of upwards of £3,000.

The house contains every requisite accommodation for a country gentleman's family, and is situated a short distance from the old family mansion. The site selected commands a most extensive and picturesque view of the magnificent country for many miles around. The offices include stables, coach and cart-houses, loose boxes, cattle feeding and calf-houses, piggeries, &c., &c. The stables are fitted with Musgrave's patent fittings, and, together with the feeding-houses, are paved with grooved fire-clay stable brick, each compartment being supplied with a trapped drain of fire-clay pipe, discharging into a large liquid manure tank, the latter being built and arched over in cement in centre of outer yard. The house and offices are abundantly supplied with water by a hydraulic ram from a rivulet which flows past the gardens. The walls are built with an excellent Portland cement, and the roof is covered with the best quality of

and other stone dressings are of chiselled limestone. The outside walls of mansion-house are lined on interior with brick, and the exterior plastered with Portland cement, finished with channelled and plain jointing. The windows of reception-rooms and porch are glazed with British plate glass. The floor of the porch and outer hall are laid with encaustic tiles. The buildings have been erected from the designs, and under the superintendence of, Mr. A. M'Alister, architect, Belfast, the contractor being Mr. Thomas Creaser, of Drogheda.

Extensive alterations and additions are about being carried out on the mansion-house and offices of Cherrymount, in the same county, for Claude C. C. Hamilton, Esq., from designs and under the superintendence of the same architect.

### A NEW CARLISLE BRIDGE.

#### TO THE EDITOR OF THE IRISH BUILDER.

SIR—As a member of the Dublin Port and Docks Board, which has had the question of re-building Carlisle Bridge under consideration, I am induced to offer a few remarks on the subject. If this great work should be ever undertaken, it ought to be in a manner fully worthy of the situation; and, no doubt, having regard to the size, beauty, and convenience, it would cost somewhere about £80,000. To raise that large sum in the ordinary way, by presentments over the taxable area of Dublin, would add about eightpence in the pound per annum during the time the bridge was in course of construction. This would, I fear, be considered a very heavy increase to the present taxation; but if, instead of raising the money by presentment, it could be obtained from the Public Loan Commissioners on the usual terms as to interest and repayment, a rate of one penny in the pound for a term of years will amply provide all that is necessary for re-building Carlisle Bridge, in a way leaving nothing to be desired. Surely this vast improvement to our city would be well worth a tax of one penny in the pound.

WILLIAM WATSON.

12th May, 1875.

### TO CORRESPONDENTS.

**SANTAS.**—The subject is discussed in present issue.

**AN OLD CITIZEN.**—In the volumes of this journal for 1872, 73, 74 there are several papers, and a series of special papers, upon matters particularly relating to this city—literary, social, sanitary, and otherwise.

**"PUBLIC RIGHTS AND PUBLIC NUISANCES."**—The article under this name is, through pressure of space, held over.

**CANCELLED.**—Some correspondence, intended originally for insertion, is cancelled, owing to delay and lapse of time.

**W. M'ELWKE (Derry).**—Drawing received. We hope to have it ready for next issue.

### HOME AND FOREIGN NOTES.

**NAAS GAS WORKS.**—A lease of the Naas Gas Works has been granted to Mr. Daniel for a term of ten years, he agreeing to pay 5 per cent. on the paid-up capital of the company.

**WARRENPOINT, CO. DOWN.**—This town is to have a water supply. Mr. John Bower, C.E., has submitted plans, and tenders have been invited for a portion of the works.

**THE O'CONNELL CENTENARY.**—When in 1871-2 we suggested that the admirers of O'Connell, in view of the anticipated completion of his monument, might fitly celebrate his centenary and inaugurate his monument together in this year, we had no idea that such a celebration was likely to be transformed into a species of saturnalia. We spoke of O'Connell as an historical character, apart from the passions of his day, and we were glad to see that the chisel of an eminent native sculptor was being exercised on a work that was likely to perpetuate his fame as well as the memory of his great countryman. We cannot endorse, however, and neither is it necessary that we should, the whole of the proposed programme which we hear is intended to be carried out in this city in August next. For the credit of our country, we hope this programme will undergo a common-sense and sober revision, and that the celebration of the O'Connell Centenary will be divested of the greater portion of its banqueting, boating, and racing, and other extravagances. If public caterers, apart from the management of the celebration, wish to cater for the amusement of sight-seers and visitors, let them do so, and it is to these parties the Centenary should be made to revolve. The programme of the celebration should be a simple one, and should be carried out in a manner worthy of the occasion.

**A LARGE SAFE.**—Mr. J. Felton Elwell, of Birmingham (manufacturer of the Sicker safe), has constructed a huge safe for the treasury of an Eastern Government. The safe, which is probably one of the largest ever made in the Midland Counties, is a triumph of mechanical genius. Notwithstanding its vast proportions, every part is made to fit with the accuracy of the most elaborate clockwork. It is constructed entirely of wrought-iron and steel. It stands 7 feet high, and is 7 feet deep, and 6 feet wide, and is panelled on every side with ornamental beaded iron. The outer plates are half an inch thick, rebated and united at the angles by alternate screws and conical rivets on to 2 inch angle-iron half an inch thick. Inside these is an air-chamber, 1½ inch deep on every side of the room. Next comes the iron chambers containing the fire-proofing. These chambers are 8½ inches deep, and contain nearly 7 cwt. of the most approved chemical steam generating compound, calculated to preserve the contents of the strong room incombustible if the exterior were enveloped in fire for twelve days. It will thus be seen that the thickness of the walls of the room is nearly 6 inches. It is so constructed that the joints and doors are fitted with such accuracy as to render the room not only fire-proof but also water-tight. The safe is fitted with double or folding doors, each composed of two plates, half an inch thick, with an intersection of drill-proof steel a quarter of an inch thick. A turn of the handle throws twenty-one steel bolts simultaneously all round the frame, and these are secured by one of the "Sicker Duplex" (or double secure) locks, the key-hole being locked over by a drill-proof steel plate. The interior of the room is fitted right and left with a series of shelves and partitions, numbering twenty-four. The back of the room is fitted with twelve safes, the lock to each differing, and there is still sufficient space for sixteen men to stand inside the room with the door shut. The weight of the whole structure is nearly seven tons. It is obvious that so large and ponderous a body could not be conveyed abroad whole; so it takes to pieces, and forms seven packages. This has been planned with such mechanical ingenuity, that the whole of the fastenings are worked and solely accessible from the inside, and are not traceable outside the room. These fastenings are so neatly and obscurely arranged that, unless they were pointed out and explained, it would be difficult to believe that the room was capable of separation without involving its entire destruction, whereas it can be taken to pieces and re-united as readily as an iron bedstead. During a recent inspection, a piece of steel by which the safe is lined was submitted to the test of several drills, which were whirled round with great velocity by steam power, and under a pressure of something like 16 cwt. Though the same drills had previously cut through thick sheets of iron as readily as if they had been soft wood, the moment the points touched the steel plate they were broken. The plate, in fact, was impenetrable, and the surface was not even scratched by the drills.—*British Trade Journal*.

**EPPE'S COCOA.**—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Eppe has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame"—*Civil Service Gazette*.

#### NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

Correspondents should send their names and addresses, not necessarily for publication.

Post Office Orders and Cheques should be made payable to Mr. PETER ROE, 42, Mabbot-street, Dublin.

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# The Irish Builder.

VOL. XVII.—No. 371.

*The Literature of Gothic Architecture in Ireland.\**



**A**RCHÆOLOGICAL research and architectural study combined have performed valuable services in supplying materials for early history, and elucidating them. Scholars and antiquaries are now, and have been for some years past, busy in several parts of the world exploring and excavating, digging, as it were, from the deep bowels of the earth the very foundations of our history, and the latent records of a civilization overthrown and buried. Like geological strata, it would appear that nations and peoples had their growth, their different stages and layers—drifts of barbarism at one period swooping down like avalanches, wiping away all surface evidences of civilised life, to be succeeded again by waves of civilisation, uncovering what had seemingly perished, and peopling the plains and valleys with life and its natural surroundings. Only from the relics and evidences of the past can we produce our proofs, and if these proofs do not exist our theories are of but little value.

Had the writers upon our Round Towers in Ireland theorised less and observed or examined more, we would have had far less assertion and a great deal more facts in proof of the origin and uses for which they were designed. The writers on either side were more concerned in demolishing one another's arguments by bold assertion and distorted statements than they were in establishing and fortifying the views which they themselves advanced; and this has been particularly the case in this country, from the days of Ledwich at least to those of Dr. Petrie. Ledwich laughed down or ridiculed all his contemporaries or predecessors who did not agree with him, while at the same time he industriously collected the smallest scintilla that could tell in his favour when he had put his own construction upon it. Dr. Petrie, too, was not above sneering down a predecessor or an opponent who differed from him. The Christian theorist acted the part of a Pagan in the uncharitable way he dealt with another Christian's Pagan views, and the Pagan theorist, though a Christian, and believing he was in the right, was not disposed, for the sake of Christianity even, to rob his Pagan forefathers of the glory to which he believed them justly entitled.

Let us calmly hear what one of these Pagan theorists, Mr. Henry O'Brien, has to say—a man whose opinions were fiercely assailed, and who has never had full or fair justice done to his memory:—"It is true," writes Mr. O'Brien in his work, "the magnificence which those memorials demonstrate is but the unenviable grandeur of Druidical, as it is called, notably and unenlightened Paganism—when man, relinquishing that supremacy consigned to him at his creation, or rather divested thereof in punishment for the transgression of his degenerate disposi-

tion, lost sight of that Being to whom he owed his safety and his life, and bent himself in homage before perishable creatures that crowd their ephemeral pilgrimage through the same scene with himself. Granted. Yet that cannot well be objected to as a disgrace which, co-extensive in its adoption with the amplitude of the earth's extension, equally characterised the illiterate and the sage; and if, amidst this lamentable prostration of the human understanding, anything like redemption, or the feature of superiority, may be allowed, it must be unquestionably to the adherents of that system which excludes the objects of matter and clay, recognised in its worship of the bright luminaries of the firmament the purity and omnipotence of that Spirit which brought into existence and who guides and preserves them in their respective spheres; and when I shall have proved that the intent and application of those Sabian Towers—or, to speak more correctly, those primitive Buddhist Temples—which decorate our landscape and commemorate our past renown, appertained to this system of purified idolatry, which only worshipped the host of heaven, the moon, and the solar body which gives vigour to all things, I shall, methinks, have removed one obstacle from the elucidation of our antiquities, and facilitated the road to adventure in this interesting inquiry."

We may remark here that Mr. O'Brien, of course, denies that our towers were "purgatorial columns or penitential heights," or that they were for beacons. He contends:—"The truth is, the Round Towers were not all intended for one and the same use, nor limited to one single purpose, and this, I presume, will account for the variety in their construction, not less perceptible in their diameters and altitudes than in other characteristic bearings."

Elsewhere in his work he writes:—"Having been all erected in honour of the Budh, they all partake of the Phallic form; but as several enthusiasts personified this abstract in consequence of the mysteries involved in the thought and the imperceptible veil which shrouded it from the vulgar, because synonymous with wisdom or wise man, it was necessary, of course, that the towers constructed in honour of each, should portray the distinctive attributes of the individuals specified. Hence the difference of apertures towards the preputial apex, the crucifixion over the doors and the absence of internal compartments." Speaking of the perfectness of their construction and their durability, Mr. O'Brien adds:—"A striking perfection observable is the inimitable perpendicular invariably maintained. No architect of the present day, I venture, could observe such regularity, Nelson's Pillar itself has been proved to vary somewhat from the perpendicular line, but the keenest eye cannot trace a deviation in a single instance from amongst the whole of these Sabian monuments."

"If asked how it was I conceive them to have been erected, I should answer, by a scaffolding raised from within. The expense in this case would be infinitely less, and the labour also. It would be very easy to let fall a plumb line at various intervals of height, by which, at all times, the perpendicular may be ascertained, and the masonry carried on by what may be called over-handing, while the cement employed is going solidly to the whole, and which is the

direct counterpart of Indian chunam, bids defiance to the efforts of man to dis sever, except by the exertions of extraordinary power."

"That both the Indians and the Irish performed circular dances around them, typical of the evolutions of the heavenly bodies, is highly probable, as we have still the name of a particular movement, apparently that practised on the occasion, still amongst us in common use, viz., Rinke teampoil, or the temple dance, and that they otherwise honoured them by performing penances around them is evident from the name of Turrish, which means a religious circuit round a tower, applied afterwards by the Catholics to any penitential round." Further, Mr. O'Brien says—"That the Scythian intruders did away with the temple worship, and that of fire was substituted."

It will be seen from what we have quoted, though Mr. O'Brien in one place denies that our towers could be used for purgatorial columns or penitential uses, still in another place he says that penances were performed around them,—Pagan penances of course. We are not disposed to further dilate upon Mr. O'Brien's theories, neither is our purpose to endeavour to weaken his arguments by quoting him in an unfair manner. His Phallic theory could be submitted to a considerable deal more discussion, and that too of a more exhaustive character than what it met at the hands of its propounder. Had he lived, it is most likely indeed that the world would have heard much more of Mr. O'Brien and his theory, and men would no longer stand aghast at the ventilation of views though they trenched on indelicate ground, if the object was the elucidation of the truth.

One of our latest native writers who have contributed to the Round Tower controversy is Mr. Marcus Keane. In his introductory remarks to his work on "Towers and Temples," he writes:—"The favourite theory respecting our Round Towers and their contemporaneous architectural remains is, that they belong to the Christian era of Ireland. My object is to prove that they were erected for the purpose of heathen worship several hundred years before the birth of Christ. Again, those who hold the Christian theories are divided into two schools,—one, of which the late eminent Dr. Petrie was the head, maintains that these ancient buildings were erected at various periods from the introduction of christianity, or (more accurately speaking) from the commencement of the fifth to the close of the twelfth century. The other school maintains that the period of all these buildings is confined to the twelfth and following centuries, and in support of this conclusion they reason very soundly on the fact that the Celtic Irish had no buildings of stone and mortar before the twelfth century, than which there is no fact in history (resting upon evidence of a negative character) more strongly attested. We have the testimony of contemporary writers that then, for the first time, buildings in stone began to be erected; the previous structures built by the Irish, whether palaces, churches, or monasteries, being all of wood and earthwork."

At p. 44, Mr. Keane writes:—"I am disposed on the whole to agree with Mr. O'Brien in ascribing the erection of the Round Towers to the Cuthites, whether under the name of Tuath-de-Danaans, Nemedians, or Fomœrians

\* See ante.

(the latter of whom are stated to have been the aborigines), and I also believe them to have been the artificers of the ancient crosses and stone-roofed temples, as well as of the so-called bells and croziers."

Among the vessels and other relics excavated by Dr. Schliemann recently on the supposed site of Troy are vases, cups of various shapes, and other articles bearing a striking resemblance in their form and ornamentation to relics excavated in Ireland at various periods, and supposed to belong to the Christian period of art. Articles in the forms of bells and croziers, or even in the shape of a cross, do not necessarily belong to the Christian era. The *fyfot*, or cross pattern, occur on various articles of antique pottery, and on bronze and other metal work, and it is more than probable several of the antiquities preserved in the Royal Irish Academy will yet be traced and docketed to Pagan artists and craftsmen than to Christian ones.

At p. 308 of his book, Mr. Keane says—"I have from the beginning of this treatise aimed at assisting to throw light upon the subject of Irish Round Towers, but heretofore I have alluded to them only incidentally as remnants of ancient Irish architecture. A few general remarks upon such edifices may, therefore, not be inappropriate. I agree with Mr. O'Brien in believing that they were Phallic Temples, erected by the Tuath-de-Danaans and their predecessors, the Cuthite inhabitants of Ireland. Buildings answering to the descriptions of Round Towers have been noticed by several writers as existing in different parts of the world; but everywhere despised, and to a great extent unused—the memorials of a race whose name and religion have been lost and forgotten. The specimens of such towers to be met with in Eastern Europe and Asia are comparatively few and far between, because the conquerors of the race for whose religion they were erected left no vestiges of either the towers or the other temples of their predecessors except such indestructible Rock Temples as defied their efforts to destroy. The circumstances of Ireland in this respect were different. The Celts who conquered the Cuthites of Ireland had no stone buildings of their own, either for temples or palaces, and they seem to have utterly despised the stone works of their predecessors, and so allowed them to remain. In later times, their superstitious veneration for these ruins was the means of preserving them to the present day, uninjured save by time."

Again, at p. 311, Mr. Keane writes as to their period of erection—"We must assign the Round Towers of Ireland to the twelfth and subsequent centuries, unless we are disposed to ascribe them, and the order of architecture which produced them (as I believe we should) to Cuthite colonies, who preceded the Celts. But the fact that more than eighty of the supposed sites of towers are places associated with the names of fifth and sixth century saints, or heathen divinities, affords in itself substantial grounds for concluding that these edifices existed before the Norman Conquest, and, if so, before the Christian era. Added to this, there is the negative proof arising from the silence of history as to the erection of any one of them. Giraldus Cambrensis alludes to them as existing in his day and peculiar to the country, not as in course of erection by his

countrymen. He calls them 'ecclesiastical towers which, in a style or fashion peculiar to the country, are narrow, high, and round.'"

Next Mr. Keane compares the towers to be found in Persia, India, Central America, and other places, and concludes—"Such a combination of numerous facts as are here noticed, has left no doubt upon my mind as to the Cuthite origin of all these edifices; however, the subject is one upon which no man has a right to dogmatise, and therefore must be left to form his own opinion on what is said in defence of each theory."

Mr. Henry O'Neill devotes two chapters in his interesting work, "The Fine Arts and Civilization of Ancient Ireland," to the subject of our Round Towers; one short chapter is devoted to the "Theories Respecting Round Towers," and another, a much longer one, to an enumeration of [not all] "Dr. Petrie's Mistakes." Mr. O'Neill, although he has not entered boldly into the discussion of the origin and uses of our Round Towers, which labour he reserves for a future opportunity, has at the same time discovered several of Dr. Petrie's mistakes, and has not scrupled as far as he went with the subject to exhibit the learned antiquary's errors. Mr. O'Neill, like Mr. O'Brien and Mr. Keane, belongs to the Pagan school, and he believes the former writer in his work throws much light upon Phallic worship, and that we have many proofs in support of his theory.

In our next paper we may give some quotations from Mr. O'Neill's work in connection with the views of others, and as a wind up to the Round Tower portion of our subject, which, without much apology, we have tacked on to the "Literature of Gothic Architecture in Ireland."

#### CONVERSAZIONE OF THE CIVIL ENGINEERS.

On Tuesday evening, the 25th ult., we witnessed a very large and distinguished gathering assembled in the new saloon of the India Museum in the Exhibition Building, South Kensington, on the invitation of the President of the Institution of Civil Engineers. The visitors numbered between two and three thousand ladies and gentlemen, including nobility, gentry, and professional men. The entrance was through the late French annexe, artistically fitted up for the occasion with beds of flowers, ferns, and evergreens, supplied by the Royal Horticultural Society. At the entrance of the upper gallery the visitors were received by the President and Mrs. Harrison, from whence they passed through the suite of rooms in the central department. The upper galleries were brilliantly illuminated, and here there was Dr. Leitner's Takht-i-Bhai sculptures and ethnological collections made by him in Dardeston, along with those made by Shaw and Forsyth in Kashgar and Yarkand. The walls were hung with copies of fresco paintings of the rock-cut temples of Ellora and Ajunta, made by Major Gill, R.E., and Mr. Griffiths, and here was also a series of photographs arranged by Mr. James Fergusson, F.R.S., illustrative of the ancient architecture of India. A pagoda of idols occupied the centre of the room. The visitors passed from room to room full of treasures and objects, natural, historical, ethnological, physical, and otherwise.

In room 18 was contained several choice specimens of Indian art and manufacture in gold, silver, jewellery, enamels, copper, brass, carvings in ivory, pottery, paper-machie, ornamental woods, and native paintings. In room 19 there was a collection of Indian and Oriental arms, arranged by the Hon. Mr. Egerton, M.P. In rooms 16 and 17, ordinary Indian manufactures were exhi-

bited, textiles occupying a large space. The collection here was rich, and comprised muslin embroideries, nets, silks, cashmere shawls, and carpets, the latter being a special feature of the museum, and many of them were lent by Lady Mayo, Colonel Burne, and Mr. Vincent Robinson.

The departments visited were many, including zoological collections, mineralogy, geology, and physical geography, and in one gallery might be seen the whole economic history of India in valuable exports—rice, cotton, opium, jute, sugar, tea, and other articles. There was a Queensland annexe, illustrative of the features of that colony, and the articles here attracted much interest. It may be mentioned that it was owing to the courtesy of the Marquis of Salisbury that the President of the Civil Engineers (Mr. Harrison) was enabled to hold his *conversazione* this year amidst the treasures of the India Museum. Worthily, however, has the President entertained his friends and visitors. In the upper gallery there was the string band of the Royal Engineers, who played a number of the most popular operatic and military airs of the day; and in the lower galleries, which open on the arcade of the Horticultural Gardens, refreshments, without stint, of the choicest kinds were provided for all. As we said last year, we say now, honour and success to the President and the Institution of Civil Engineers.

It may not be out of place to state here that the Museum will be re-opened to the public on this day (1st of June), and in a subsequent issue we may have something further to say in connection.

#### CORRESPONDENCE.

##### RATHMINES GLEBE HOUSE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—It is not surprising that a competition of such importance to the profession and, one might almost say, to the "community at large" as that for the Rathmines Glebe House—a building on which it is proposed to spend at most £1,200—should largely engage the attention of your valuable journal. Information is asked for in your last esteemed issue. The select vestry asked for plans for a house that would cost £1,200, estimated at the rate of 6d. per cubic foot, and they got a number which strictly accorded with this condition, and selected one out of them. What that select body could possibly have done to "render themselves liable to architects (if any)" other than the author of selected design by the process of honourably carrying out the conditions they proposed, is a curious question. Delighted as I am at all times to afford any information as to the private progress of professional business when of public interest to the readers of your journal, I have pleasure in informing you that the progress of this ecclesiastical residence is not temporarily arrested on account of tenders "having exceeded the amount at disposal." Should you desire to continue the interesting and instructive series of Designs for a Glebe House, I may perhaps be permitted to offer for illustration my drawings submitted in competition, and thus continue a publication of plans calculated to be of use and interest to the speculative builder. THOMAS DREW.

##### "NEW WORKS IN COUNTY MEATH."

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I perceive that in your issue of last Saturday, under the above heading you give particulars of "a new mansion-house and offices which have been completed at Curragestown, at a cost of upwards of £8,000." Will you kindly allow me space in your next issue of THE IRISH BUILDER to supplement your very minute and accurate account of the improvements lately effected here, by stating that the entire works have been executed pursuant to the desire and at

the expense of my new landlord, Mr. William N. Nicholson, Balrath. That gentleman has guaranteed to me the enjoyment of same, together with the farm on which they stand, the compliance of *one condition only* being imposed—the payment of my rent as usual! Gratitude to a benevolent and good landlord will, I trust, be deemed by you a sufficient apology for thus trespassing on your valuable space.—Yours,

JAMES J. MASTERSON.

Curraghtown, Moynalty,  
May 18th, 1875.

### THE BALFE STATUE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Allow me to ask is the movement for this object defunct? For some weeks past I have not seen in the newspapers anything of it save an isolated acknowledgment of a pound or two, nor have I perceived any of the usual reports of the committee's proceedings, or the advertisement asking for subscriptions for the laudable purpose. "Strike the iron while it is hot," is an old adage, and conveys a moral—a principle—which when acted on is generally successful. I trust the patriotic and gifted committee are still living, and that the Balfé statue which has, so to speak, budded, will blossom, and that I shall see it more firmly seated in his native city than the oak in the forest.

WILLIAM ADAMS.

Gt. Brunswick-street,  
27th May, 1875.

In reference to the above, Mr. John O'Duffy writes:—

SIR,—I have pleasure in informing your correspondent that the movement is neither dead nor defunct. The writer will easily understand that at a time when there are so many objects before the public of a similar, but, perhaps, in one sense, not of a more deserving nature, it would be injudicious to bring Balfé's claims too prominently forward. We all know the *moral* of the proverb "Too many irons in the fire," and at the present time there are enough in it, both interesting and exciting, without pressing Balfé's claims persistently. There, for instance, is the O'Connell Centenary, the International Rifle Match, and a number of other matters that, no doubt, excite and claim public attention; and, when the proper time arrives, your correspondent will find that the committee will not fail nor falter in carrying out the purpose for which it was formed. When I say this I believe I speak the sentiments of each member of it. The action of the Balfé Committee is only in a degree suspended for a time from prudential reasons; and the time will be short till your correspondent and others that take an interest in doing honour to the memory of a distinguished Irishman will see the committee's efforts renewed. I have faith in the Irish people—in their genius, in their liberality, and their admiration for genius; and I am confident that when Paris and London honour Balfé by a memorial, Dublin and Ireland will yet give him one that will do the Irish people no dishonour, and which will, in his native city, worthily perpetuate his memory. JOHN O'DUFFY.

Gardiner's-row,  
28th May, 1875.

### MICHELANGELO.\*

(Continued from page 140.)

AFTER a period of doubt and free inquiry, the Vatican at last put forth its power, and the Inquisition, with all its horrors, was established in Rome just as Michelangelo had completed the "Last Judgment." This important step was taken about 1542, and Vittoria Colonna, warned of what was impending, fled to Viterbo, leaving a gap, in-

capable of being filled, in the eventide of Michelangelo's life.

Ruin fell on the Colonnas. Two great for the subjects of a jealous autocracy, they became obnoxious to the Pope, who determined to break their power, and when, six years afterwards, Vittoria was able once more to visit Rome, her refined and elevated spirit was broken down by the ruin of her family. She had made her peace with the authorities; but the old life could be no more.

Sad must have been her meeting with Michelangelo. She had suffered much from illness and anxiety. Her family and friends were scattered, and she was left alone and unprotected. She withdrew into a convent, and gave herself to works of charity and piety, until death came to her, as a liberator, in 1547.

There is a portrait of this remarkable lady. It was once ascribed, as is now believed erroneously, to Michelangelo. Some, however, think that the composition and drawing may have been by the master, and the colouring by a pupil. It is at least probable that the work was suggested, or inspired by Michelangelo, and represented his favourite and friend as he wished to see her. It represents an aged woman. A widow's veil covers head and figure. A tall and upright form, as may be seen, though she is sitting in a chair, distinguished the noble lady. An open book on her lap indicates her character. I think this portrait of great interest, if only as indicating the nature of Michelangelo's love and admiration, pure from any sensual or commonplace alloy.

Michelangelo lost his beloved friend a year after his appointment to St. Peter's, and had therefore to prosecute that great and anxious work uncheered by her affection and sympathy.

We know that in spite of his modest reluctance to assume the title of architect, he was, in fact, no novice in the art, and had already given proof of his skill. The Laurentian Library at Florence, carried out at the same time as the statuary in the sacristy, is a good specimen of his style, although from its having been completed by other hands, it does not present the effect he would probably have produced. While at Florence, he is said to have also designed the windows of the Palazzo Riccardi, and he added to the Farnese Palace at Rome its well-known and beautiful cornice.

The palaces of the Capitol were likewise his work. They form three sides of a square, and are approached by a handsome flight of steps, familiar to all visitors to Rome. They bear the impress of the style of Michelangelo, bold of conception, vigorous of execution, but somewhat wanting in grace and refinement of detail.

Another of his architectural tasks was the conversion of one of the halls of the Baths of Diocletian into the Church of Sta. Maria degli Angeli. This he did by adding transepts, in the middle of the length of the hall, which thus assumed the shape of a Greek cross. Subsequent alterations have unfortunately marred the simplicity of this plan, which was a great favourite with Michelangelo.

Various designs are known to have been proposed by him, such as those for the Porta Pia, and the Porta Del Popolo, at Rome, but were never carried out; and the ascription to him of the design for the front of the Villa Medici is somewhat doubtful.

We have seen that his skill in fortification was early called into play for the protection of his native city, and the reputation which he thus gained induced Paul III. to consult him afterwards on the subject of the fortifications of Rome. These works were projected under the advice of Antonio San Gallo, brother of the Giuliano San Gallo, who was one of the earliest friends of Michelangelo, and who is not to be confounded with the former.

Michelangelo's advice, which was opposed to that of San Gallo, prevailed, and this was one of the circumstances which rankled in the mind of the latter, and embittered his

hostility to Michelangelo, of which we shall have to speak again hereafter.

Among the unexecuted designs to which reference has already been made, I ought to mention one for a church which was to have been erected at Florence, and dedicated to St. John the Baptist. Unfortunately, nothing came of this proposal, which we may well regret, as Michelangelo is reported to have said of it that, "if built, nothing would be found to surpass it."

In all his compositions, Michelangelo showed his independent spirit, spurning rules, and introducing innovations, in defiance of classical practice. There is always in them a boldness of grasp, and grandeur of style. These are the attributes of genius, and not to be achieved by lesser men, who, while they do well to shun the faults of Michelangelo, do better to study the secret of his strength.

It is much to be regretted that the architectural works of Michelangelo are not more numerous and important; but his great work at St. Peter's was sufficient to immortalise him, and to this, we will now turn our attention.

The present Basilica of St. Peter's is a successor to a more ancient building, of the same name, said to have been erected by Constantine, and consecrated A.D. 324. The dimensions were large, 485 ft. by 248 ft., and the architecture was of the well-known Byzantine type. It had four rows of columns, dividing the interior of the church into five parts, of nave and double aisles on either side. Many of these columns were of the rarest marble, and Michelangelo subsequently made it a subject of bitter complaint against Bramante, that he had not preserved some of them for the adornment of the new structure.

The plan was converted into a cross by transepts at the end of the nave, with a semicircular tribune as a centre feature, facing the nave. The roof was covered with gilt bronze from the Temple of Venus, at Rome, and other ancient buildings were laid under contribution to add to its richness and beauty.

The Basilica was approached by steps 145 ft. wide, and disposed in five flights. In front of the church was an atrium, surrounded by a cloister, and the whole building, with its appurtenances, occupied a space of about 800 ft. by 260 ft.

This church had been the favourite place of worship for the bishops of Rome for upwards of fourteen centuries. It had suffered from fire, from the violence of barbarians, and from decay, but it had been repaired by the Popes, and in the fourteenth century Giotto had contributed to its decoration.

Pope Nicholas V. had plans prepared, as early as 1447, for a complete rebuilding, but nothing was seriously attempted until Julius II. was led, as we shall see, by personal causes, to give a new impetus to the proposal.

To be continued.

### TENDERS.

**Hamburg.**—Curing-cellars and packing-house for Messrs. F. H. Thompson and Co., of London and Cork; Mr. Robert Walker, architect, 17 South Mall, Cork. Lithographed copies of drawings and specification supplied:—

H. Lohse,	Hamburg	£4,186 0 0
J. Schumacher (accepted)	"	6,500 0 0
J. Albers and Rockstrohen	"	6,700 0 0
Brodthmann and Grimen	"	7,100 0 0
Mess and Otto	"	7,156 0 0
J. Warden and Son, for Iron Ice	"	
Floor (accepted)	"	443 16 8

**Cork.**—Factories and warehouse for Messrs. Dobbin, Ogilvie, and Co., of Cork; same architect; quantities by Messrs. Gribbon and Butler of Dublin and Belfast:—

	With ground lime.	Allow for rubble stones.
Messrs. E. and P. O'Flynn	£9,400 0 0	£407 12 0
Terence O'Flynn	9,301 0 0	356 0 0
Architect's Estimate	9,173 17 6	407 12 0
John Brien	9,086 0 0	305 14 0
John Delany (accepted)	9,120 7 1	407 12 3

B

\* Professor E. M. Barry's third lecture at Royal Academy, March 8th.

## ON THE CONDITION AND PROSPECTS OF ARCHITECTURE IN THE UNITED STATES.\*

(Concluded from page 134.)

✓ To remark in detail on the various classes of buildings already referred to, it may be observed that the suburban villas are largely built of wood, and in the use of this material for such, the Americans have developed another variety of the national style, which, though often used with extravagance and bad taste, is also often practised with success. Verandahs are found to be an essential feature in all these, and often very prettily treated, and many frame houses are to be seen, especially in the environs of Saratoga and Newport, which form as elegant and attractive residences as could be wished for. The Gothic style is coming into pretty extensive use for this class of house, for which it is well suited. Brick and stone villas are not so frequent, and where indulged in, their architecture conforms more to the English type, whether of Gothic or Italian.

The extensive use of wood in middle and lower class dwellings in the suburbs of the great cities has had a good deal to do with the extent and destructiveness of the fires which have recently desolated some of these cities. At Chicago especially, although the central and business portion of the city was solidly built, there was, and still is to a great extent, an immense surrounding district composed of small wooden houses, in which when once a fire got head it spread with unusual force to other districts. The rebuilding of the city, although conducted in a more solid manner than before, will be no safeguard against similar disasters so long as this immense surrounding inflammable district remains as it is, or is permitted to be rebuilt of the same materials. However, in many of the cities, stringent municipal regulations have been passed forbidding the erection of frame buildings within certain limits—a wise precaution, as though when standing apart, frame houses are not particularly objectionable on the score of their liability to conflagration; the case becomes different when a large number are huddled together.

The town houses, of New York and Brooklyn especially, are distinguished by their completeness and elegance. It can hardly be expected that there would be much variety in their external architecture, which is mostly of the Americo-Italian type, though here and there Elizabethan or Gothic has been tried. The exteriors are, however, generally quiet and gentlemanly in effect, the details of the steps, balustrades, doors and windows being, I think, much superior to ours. The doorways are almost invariably spacious, handsome and inviting, with an external pair of doors disclosing a recessed porch, paved with marble, having handsome glazed doors within. All the woodwork being commonly of walnut with ornamental silver-plated hinges and fastenings, the effect is very good. The plans of the houses are different from ours, and are of two kinds, called the "high stoop" and "English basement" respectively, the latter houses being different from anything usual in England. The peculiarities of these two plans will be best understood from an inspection of the drawings of each kind. Of course there are many varieties of these two leading types, the "high stoop" being the favourite, and deservedly so, as it admits of considerable expansion. There are some houses of this class on corner lots perfectly sumptuous in all their details and appointments, for the purchase of which sums approaching to £40,000 or £50,000 have been given. The enormous value of land in the fashionable parts of New York renders it almost impossible to get a lot of sufficient size to build a mansion greatly different from the ordinary plan. That of Mr. A. T. Stewart, at the corner of Thirty-fourth-street and Fifth

Avenue is a notable instance, and is built of white marble, and said to have cost, with the site, about two millions of dollars, or £400,000.

These town houses, being some of the most satisfactory buildings to be seen in New York, are, however, rarely the work of architects. I believe originally architects used to be employed on them, and still whenever a very grand one is wanting, an architect is sent for, but they have developed into their present state of completeness chiefly by a tentative process, one builder copying from another this or that improvement, and so on. An English firm, Messrs. Duggin and Crossman, has been distinguished like the Messrs. Cubitt, in London, by the completeness of the houses they have both planned and built. There are in the upper part of New York some very splendid houses from their hands, worthy of the best parts of Belgravia, and costing each, with their sites, upwards of £30,000 of our money.

The churches next require to be noticed, and seem quite as numerous as with us, notwithstanding the absence of any State endowment to religion. Although the Roman Catholic and Protestant Episcopal Churches have a large following, the bulk of the religion of the United States is some form of what we are accustomed to call Dissent or Nonconformity, and this has an important influence on the style of the religious edifices, which are all called "churches" irrespective of denomination. The older ones to be found in the eastern cities, above referred to, are generally copies of well-known English churches of Wren's time or thereabouts, but more often reproduced in wood than in any other material. The Puritans who colonized the New England States, however they may have hated episcopacy and all its surroundings, seem to have aspired to make the churches they built in the new world as like those of the Episcopal Church at home as possible. Hence in Boston, Hartford, New-haven and other eastern cities, any one familiar with the London churches can easily count them from their duplicates all round him. Here is St. Clement Danes, there St. Bride's, here St. Martin's-in-the-Fields, there St. Mary-le-Strand, &c. St. Martin's seems to be a prime favourite, and has not only been frequently reproduced in wood, but sometimes in stone also. There is a pretty fair replica of it in the latter material, which has been recently erected for the Unitarians in one of the best quarters of Boston.

There are a few such reproductions to be seen in New York also; but some of the wealthier Episcopal congregations, following the English fashion, have in later times erected some very substantial and monumental churches, reviving the architectural features of the Perpendicular Gothic period. Trinity Church, New York, by Mr. Upjohn, is the best specimen of this kind; it is so accurately reproduced from one of the best English models, that with its churchyard and surroundings, it looks like a bit of the old country bodily transported across the ocean. There is another Trinity Church in Brooklyn by Mr. Lafever, which closely resembles some of the large parish churches erected in England some thirty years ago. It has galleries in the aisles between the nave pillars. These two churches, albeit much behind the modern efforts of the Gothic Revival in England, are superior to most of the churches of late date built in the United States. A few of these latter, built for the Episcopal communion by well-known New York architects, show some advance as regards detail and finish, but none of them seem to have been erected under such favourable circumstances as the two above mentioned. The basilican plan with Lombardic details has been adopted in one instance with marked success in the Church of St. Bartholomew, New York, by Messrs. Renwick and Sandes.

The Roman Catholic community has also erected some very respectable churches, and the cathedral for that denomination, now in progress on Fifth Avenue, from the designs

of the last-named architects, promises to be as fine as any modern European church of the same class. It is being built of white marble, in the Geometric or Decorated style, and the works are being executed in the most thoroughly sound and substantial manner.

The churches built for the Episcopal and Roman Catholic communions are, as might be expected, no way different in plan or arrangement from those erected for the same worship in England; but of late years the striving after novelty in the style has led the architects of some of the new and fashionable Episcopal churches to indulge in heights and depths of sensational or "acrobat" Gothic that are enough to make the hair of some of our Gothic revivalists stand on end. When the architect is done his work, a mediæval decorator is called in, under whose direction the roof timbers, walls and all other available spaces are set ablaze with colour and gilding. Nor are the other or non-episcopal denominations much disposed to remain behind in striving after architectural effect. Although from the simplicity of their worship, and the importance attached by them to preaching, the plans and arrangements have to be assimilated to those of lecture or music halls, still there is a strong disposition to have (externally, at any rate) naves, aisles, transepts, and a tower or spire. Indeed in some instances this disposition has been so strong as to result in the erection of buildings for Presbyterian worship quite as much in accordance with ecclesiastical precedent as any of those erected by the Episcopalians. There is a very elegant Presbyterian church of this class in Philadelphia, by Mr. Sims, one of the best pieces of modern Gothic to be seen in that city; and a perfectly sumptuous Dutch Reformed Church on Fifth Avenue, New York, by Mr. Wheeler Smith, which, with some extravagances, displays a good deal of taste and knowledge of Gothic detail, and is executed in the best possible manner.

In general, however, the difficulty of reconciling the conditions referred to has led the architects into all manner of devices and disguises, such as rounding off the angles by studded partitions inside, so that the internal plan and section are often circular or elliptical, while all the external forms are square. About the most notable examples of this kind of treatment are the new church on Fifth Avenue, New York, for the congregation of the Rev. John Hall (formerly of this city) by Mr. Carl Pfeiffer, and the new Church of the Holy Trinity, also in New York, by Mr. Eidlitz. Some of the results achieved in the same manner are positively fearful to the unsophisticated European critic. The problem of providing a spacious auditorium, while maintaining a dignified ecclesiastical character, is one which remains yet to be solved at this side also, but the inducements to attempt its solution are much stronger in America than here. For, as already observed, the bulk of the community there is attached to forms of worship which require buildings primarily contrived for hearing and seeing, and the sums which are devoted to their erection are such as ought to be sufficient to carry them out in a suitable and dignified manner.

Amongst the forms lately introduced for the plans of such churches is the semicircular or that of the Greek theatre, which has been found very successful for hearing and seeing. Such a plan would admit of very effective treatment in the Classic style, but as that has gone out of fashion, for attempts have been made to adapt the Gothic style to it, especially at the Rev. Mr. Talmage's tabernacle at Brooklyn, but the result has been anything but a success. Those who remember seeing Mr. Burges's design for a senate house to one of the universities, will be disposed to admit that even in his hands a semicircular plan proved very intractable with Gothic details. Other and more fearful results have been produced by another architect, who has achieved somewhat of a reputation, by disguising semicircular plans with

\* By William Fogerty, F.R.I.B.A. Read at Ordinary General Meeting of the Royal Institute of the Architects of Ireland, April 15th, 1875.



heaps of towers, minarets, colonnades, &c., carried out in galvanised iron, as in the Rev. Mr. Hepworth's new tabernacle in New York.

The internal fittings, being nearly always of hard wood, are much superior to the general run of those in our churches, and a much greater degree of attention is bestowed to the comfort of the congregation than with us. The vestibules, passages and pews are usually carpeted, and the warming and ventilation carefully attended to. On the whole, it must be admitted that the American churches are much more comfortable to worship in than our own.

The American hotels form, as observed, a notable "institution" of the country. Built not alone for strangers, but for residents, who board in them to an extent unknown with us, they are usually of colossal dimensions, and should form noble subjects for architectural treatment, though it is to be regretted that they are just as often built without architects as with them. In the large cities the ground floors fronting the streets are ordinarily occupied by shops (or "stores," as they are called), to each of which there is an entrance from the central hall of the hotel, so as to enable the guests to do their shopping without going into the street. The entrance-halls and corridors are unusually spacious, and form a sort of general lounge or exchange, as much frequented by outsiders as by those who may be staying in the house. Off these are billiard, smoking, reading and writing rooms, a telegraph and post office, and office for the sale of theatre and railway tickets, a gorgeous bar for the sale of liquors, newspaper, book and cigar stands; a barber's shop is an invariable adjunct, with bath-rooms and lavatories attached. To secure privacy to the fair sex, a separate entrance for ladies is almost always provided, through which they can reach the most private parts of the house without passing through the Babel of loungers and smokers which ordinarily prevails in the main hall. These private rooms, including dining and drawing rooms, are laid out on a most spacious scale, as also are the various suites of private rooms, to which, when on the upper storey, access is commonly had by means of elegantly-furnished and appointed "elevators" or lifting rooms. The hotels at the watering places and in the country differ in having spacious verandahs or colonnades surrounding them, and generally a magnificent ball or assembly room is attached. It is clear that, conceived on this scale, no finer architectural subjects could be wished for; and when we note that white marble and other costly materials are extensively used in them, the principle will be still more manifest. The new and colossal ones at Chicago are certainly very grandiose in effect, and the best architectural talent of the place has been brought to bear on them; but there are but few others in which such has been the case, and, however spacious and convenient, they are commonly huge masses of ugly building rather than architecture.

The last large new hotel on Fifth Avenue, New York, was planned as well as built by an enterprising "boss" builder (a native of this country), it being the practice of such men sometimes to profess that they "keep an architect" for the purpose, much as Moses and Son used to keep a poet. The building is a large ungainly pile of red bricks about nine or ten storeys in height, but has been sumptuously fitted up inside by some of the able German cabinetmakers or upholsterers already referred to, displaying all "the wealth of Ormus or of Ind," and no doubt producing its full effect upon "kings barbaric," such as Kalakna of the Sandwich Islands, who, as well as the late Lord Mayor of Dublin, were amongst the recent distinguished guests.

The warehouses and shops (or "stores," as they are called) in such a commercial community, also assume colossal proportions. In them more particularly the use of cast iron is general, not alone for internal columns, as with us, but also for all external architectural features. Façades

eight and ten storeys high are executed in it, and with an excellence of finish and accuracy of detail that is seldom seen at this side. There are several large foundries called "Architectural Iron Works," in which the stock of models is very extensive, comprising all the best examples of the Greek and Roman orders to almost any diameter. The facility with which these can be put together to form showy fronts, has had a very decided influence on the street architecture, which exhibits a great tendency to run into columns, and the repetition of the same details through nine or ten storeys is very common. Indeed so prevalent have these characteristics become, that even where cast-iron is not used, the influence of the cast-iron school in this direction is felt. This is noticeable in some of the great United States' buildings already referred to, which, although built of cut granite, exhibit one order with little variation used through all the storeys. This must be looked on as a decided element in what may be called the "American Renaissance" style. Other characteristics of it are the extensive adoption of the mansard or pavilion roof, which is not so much a constructive necessity as a matter of taste.

The ordinary covering of American buildings is tin in plates about a foot square soldered together, laid on boarding with very little inclination. In order to make the roof show, at least in front, however, a steep-pitched or curved roof covered with slate is commonly used towards the street. Recent municipal regulations have required that the rafters, &c., of these should be of iron, and cast-iron crestings and ridges of gorgeous patterns are used upon them.

In the application of cast-iron both to the constructive and decorative portions of their buildings, the Americans have displayed much skill and taste, and at first sight it would seem that the extensive use of this material would be an effectual safeguard against fire. This, however, is seldom the case, as although the façades may be of iron, as above described, the floors fitting into them are of wood, and, from its cheapness, the latter material is used much more freely than with us. Of late years brick arched floors on rolled iron joists have become more general, but still wooden floors and staircases are used in most instances, where stone would be employed with us.

Some of the most important warehouses are not built of cast iron, but of marble, forming very imposing piles of building; and in some of the more recent cast-iron ones, where architects have been employed, praiseworthy attempts have been made to adopt architectural forms, which should not be derived from or suggestive of stone, and in some instances with a fair amount of success.

The banks, insurance and newspaper offices may be placed together as forming another class of buildings on which enormous sums are expended, and architects nearly always employed. Some of these are very magnificent, usually of brick, stone or marble, and quite as sumptuous in their internal appointments as the London buildings for the same purposes, except that the newspaper offices in the old country do not deserve to be mentioned in the comparison, being, as we know, downright mean and contemptible. The Equitable Life Insurance office, by Mr. Gilman; the New York, by Mr. Thomas; also the Connecticut Mutual and Charter Oak, at Hartford, by Messrs. Bryant and Rogers, will compare favourably with any similar buildings in England or Ireland; but we have no newspaper offices worthy of mention beside those of the *Staats Zeitung* and *Tribune* in New York, the works of Messrs. Fernbach and Hunt respectively.

The architecture of the last-named building is different from anything hitherto described, it being of red brick with granite intermixed, and of a style peculiar to the architect, Mr. R. M. Hunt, whose works are distinguished by great originality and beauty of detail. Their characteristics are difficult to describe, and they will be best understood from inspection of the drawings or photographs of his buildings.

Modern French, Gothic and Greek elements are to be found in nearly all his designs, and yet most skillfully and tastefully combined, so that his detail is almost always worthy of close examination and study.

The most important of the telegraph companies, the Western Union, has recently completed a magnificent building for its head office in Broadway, New York, ten or twelve storeys in height, of granite and red brick, from the designs of Mr. G. B. Post, the details of which are remarkably elegant, the execution throughout solid and substantial, and altogether the effect very fine as a specimen of a more advanced type of American Renaissance than what has been previously alluded to.

The city hall of New York belongs almost to a past age in the brief architectural history of the country, but it is solidly built of white marble, and really looks what it is, an uncommon point of excellence, where the uniformity of the prevalent style makes it often difficult to distinguish the purpose of a building from its external appearance. That of Boston is newer, of French Renaissance type; but Philadelphia is outdoing all rivals in the erection of the magnificent town hall already referred to, a full set of photographs of which, kindly presented to me by the architect, Mr. W. M'Arthur, lies here for inspection. The contract for the marble work alone of this great building reaches almost one million pounds.

The United States law courts are commonly held in the same buildings as are used for the post offices, which are, as already described, under the direction of the United States' Treasury; but besides these there are local courts in each city, which as yet are but in few instances worthy of their importance. The city of New York certainly has paid pretty dearly for the unfinished building in which its courts are held, the contracts for which were manipulated by the infamous Tweed Ring so as to make it cost considerably more than the Houses of Parliament in London. It is a respectable piece of Roman architecture in white marble, and is to have a dome when completed. The court rooms are nearly all square, with few and simple fittings, and are considerably more spacious and lightsome than the corresponding rooms with us.

The state capitols form perhaps the most ambitious class of public buildings, and several new ones on a grand scale are either in progress or projected. That for the State of New York, at Albany (already referred to), by Mr. Fuller, has been illustrated in more than one English journal, and promises to be one of the greatest buildings in the world. It is being carried out in the most solid and substantial manner, and will probably cost almost four millions of pounds. Several others on a smaller scale have been erected in various parts of the Union, generally in the Classic style, and nearly always with domes, suggestive, no doubt, of a family resemblance to the great United States' capitol at Washington. The State of Connecticut, however, has shown a decided preference for Gothic, and in a recent competition the designs of Mr. Upjohn in that style were selected, and the building is now in course of erection in a thoroughly substantial manner, in granite and white marble, under the direction of Mr. James A. Brown. The contractor, Mr. J. G. Batterson, of Hartford, is distinguished as the proprietor of extensive granite and marble works, and has contributed largely to the development of the geological resources of the country. The design is noticeable as an attempt to adapt Gothic details to a dome, a feature that some of our leading Gothicists have long desired to reconcile with their favourite style. The cost of this building will probably be about half a million pounds, and another of nearly the same cost is in contemplation for the State of Indiana at Indianapolis.

It will perhaps illustrate the rapidity with which progress is made in the United States

when I refer to the complaint\* of the late Charles Dickens, that at the time of his first visit no respectable theatre existed in New York, and contrast it with the existing state of things in which that city possesses three or four of first-class dimensions (as large as Covent Garden or La Scala), and a host of minor ones, nearly all of which have greatly the advantage over the London and Dublin theatres in not being huddled away into disreputable quarters, but occupying noble and commodious sites. They are also in general constructed in a more spacious and substantial manner, with wide doorways and passages, and are handsomely furnished and carpeted. The planning is not usually so intricate or scientific, or the decoration so artistic, as in the English or French theatres, but the conditions to be observed are simpler, and the interior effects of some—particularly the academies of music of New York and Philadelphia—are very fine. The external architecture of these two great theatres is simple, being chiefly of brick, but nevertheless is fairly appropriate and expressive; whereas two other theatres, Booth's and the Grand Opera House—the exteriors of which have been executed at enormous expense in granite and marble,—though showing handsome façades, do not appear at all like what they are, and might pass just as well for hotels or banks. In music halls, Boston decidedly carries the palm, having one of the finest I have ever seen, with an organ of stupendous dimensions and power.

The buildings erected for the academies of fine arts, both in New York and Brooklyn, are some of the most favourable specimens of secular Gothic to be seen in these cities, and are the works of Mr. P. B. Wight and J. C. Cady respectively. These societies, wholly voluntary and self-supporting, have established annual exhibitions of the works of living artists, which are well supplied and attended, and will no doubt grow in importance from year to year. Buildings for State museums, both of the fine arts and natural history, have been commenced in the magnificent Central Park of New York, to receive collections, including that of the Cyprus antiquities, recently purchased by General Cesnola, which are in process of formation. The designs for these buildings are in the hands of an able architect, Mr. Jacob Wray Mould. A very effective building for a public library, rather in the modern French style, is in progress near Central Park, from the designs of Mr. Hunt, who was also the architect of the Presbyterian hospital in the same direction, one of the best pieces of secular Gothic to be seen in America.

It is not possible in the limits prescribed for such a paper as this to do more than glance at some of the most prominent of each class of buildings, and I will now proceed to a few remarks on the condition of the profession. It is not by any means as flourishing—as the large amount of building doing in the country would lead one to expect. Nevertheless, there are in each large city a number of very successful practitioners, and there is no reason to doubt but that the number will increase according as the American public begins better to understand and appreciate architects and their art. The architects themselves have much to do to diffuse a wider knowledge on the subject, and also, as I have endeavoured to show in my previous paper, much to improve in the style of their practice. At present—no matter how lavishly money may be expended in brick, granite, marble, wood or iron, amounting, as will be seen, to four or five times the sums expended on similar buildings in the old country—the American public seems to have little confidence in its architects, and seems disposed to employ and remunerate them only on the most limited scale. What stronger instance of this could we have than that of the architect to the United States' Treasury, who, while planning buildings that cost from ten

to twenty millions of dollars annually, receives but 4,000 dollars a-year himself, or about three times the pay of a bricklayer in the same country? The gentleman already referred to—who filled that office for eight years, and displayed no ordinary ability in the conduct of the vast works entrusted to him—has, it is said in the papers, retired comparatively a poor man, nor has there been any allusion to a pension.\* Architects in private practice can do much better, of course; but the disposition is very much, as in the case mentioned, to do without them if possible, and even when they are employed, to limit their functions to the supply of the necessary drawings—the superintendence, adjustment of accounts, &c., being placed in other hands. The American public cannot, however, be blamed for this, when the profession itself neglects these two important branches of its duty. It has been credibly stated of a well-known New York architect that, when asked by his client how much the brickwork of a building would cost, replied that “he had not the least idea, as he really did not know how bricks were sold, whether by the pound or otherwise.” No wonder if, after this, clients conclude that architects are only fit for drawing pretty pictures, and feel disposed to get rid of the architect once the drawings are prepared, or else place the next monster hotel or warehouse wholly in the hands of some so-called “practical man,” as in the cases already alluded to.

Among the most obvious wants in America is a weekly journal devoted to the interests of the architectural and building public. In a country where journalism in all other departments is so fully worked, there seems every reason to anticipate success for one such. At present the English building journals circulate largely, but they can neither give local news nor be desirable media for trade advertisements. There is a monthly journal called the *American Builder*, very good of its class, but once a month is not often enough either for news or advertisements.

The neglect of the financial element in their practice by American architects recently called down on the profession a severe rebuke from the late Governor of the State of New York, who, in his message to the Legislature, drew attention to the fact that State buildings had cost on the average about four times the amount of the architects' estimates. In consequence of this alarming discrepancy he recommended that in future the architects should only be employed to furnish the drawings, and that when once these were obtained a builder should be employed to superintend the work, including the adjustment of estimates, contracts and accounts. This is simply carrying out by the State the same principle which so generally prevails in private practice, and considering architects as mere draughtsmen, unfit to be trusted with anything beyond the limits of their drawing boards. In fact the very word is misunderstood, and whenever a member of the craft wishes to let the public know that he is anything more than a draughtsman, he has to advertise himself as “architect and superintendent of works,” as if the former did not necessarily imply the latter.

The most respectable members of the profession in the United States have, during some years past, organised an American Institute of Architects, allied in its objects to those of this Institute, and the Royal Institute of British Architects, and deserving of the good will and sympathy of all similar societies, and which, it is to be hoped, will tend, sooner or later, to bring the profession to occupy a higher place in public estimation. It is organised on an admirable plan, by which undue preponderance is not given to any one city, but chapters formed in each, holding meetings and attending to local affairs, all meeting annually in a general convention held in one or other of the chief cities by rotation.

\* The plasterer who executed the work of the New York Court House, under the Tweed Ring, is said to have realised about 250,000 dollars (£50,000) by his operations.

This institute owes no small degree of its utility to the secretaries, Messrs. A. J. Bloor and Carl Pfeiffer, to whom, and to the Secretary for Foreign Correspondence, Mr. H. A. Sims, the author of the present paper is indebted for many courtesies. He would be glad to see the British and Irish Institutes maintain the most friendly relations with so worthy a body, and that all may unite in the sanguine hope that whatever of excellence there is to be found in the past or present of American architecture, is as nothing to what will be realised in its future.

#### THE VICARAGE, RANDALSTOWN, COUNTY ANTRIM.

THIS house, of which we give an illustration, is now being erected close to and overlooking the town of Randalstown, County Antrim. The site is elevated, and gives extensive views of the surrounding country, including the demense of the Right Hon. Lord O'Neill, of Shane's Castle, which it adjoins.

The house is built of brick—external walls being hollow and faced with Belfast red pressed bricks, having bands of blue and white bricks. The strings, sills, and lintels are of white sandstone from the Cookstown quarries; the roofs to be covered with Bangor blue slates, and finished with red ridging. All the exposed woodwork to roofs, &c., is of memel. The plan provides on ground floor—drawing and dining-rooms, and study, with cloak and store-rooms, kitchen, scullery, pantries, and larder. On chamber floors—five bed-rooms, and two dressing-rooms, bath-rooms, closets, &c., and servants' bedroom. The out-offices include fuel shed, car-house, stable, and cow-house, with lofts over latter. The house-yard is distinct from stable-court, and both are well enclosed.

The whole of the works are being carried out, from the designs and under the superintendence of Mr. William M'Elwee, architect, of Londonderry, by Messrs. H. M'Manus and Son, builders, of Randalstown. It is estimated that the works, including water supply, &c., will be completed under £1,400.

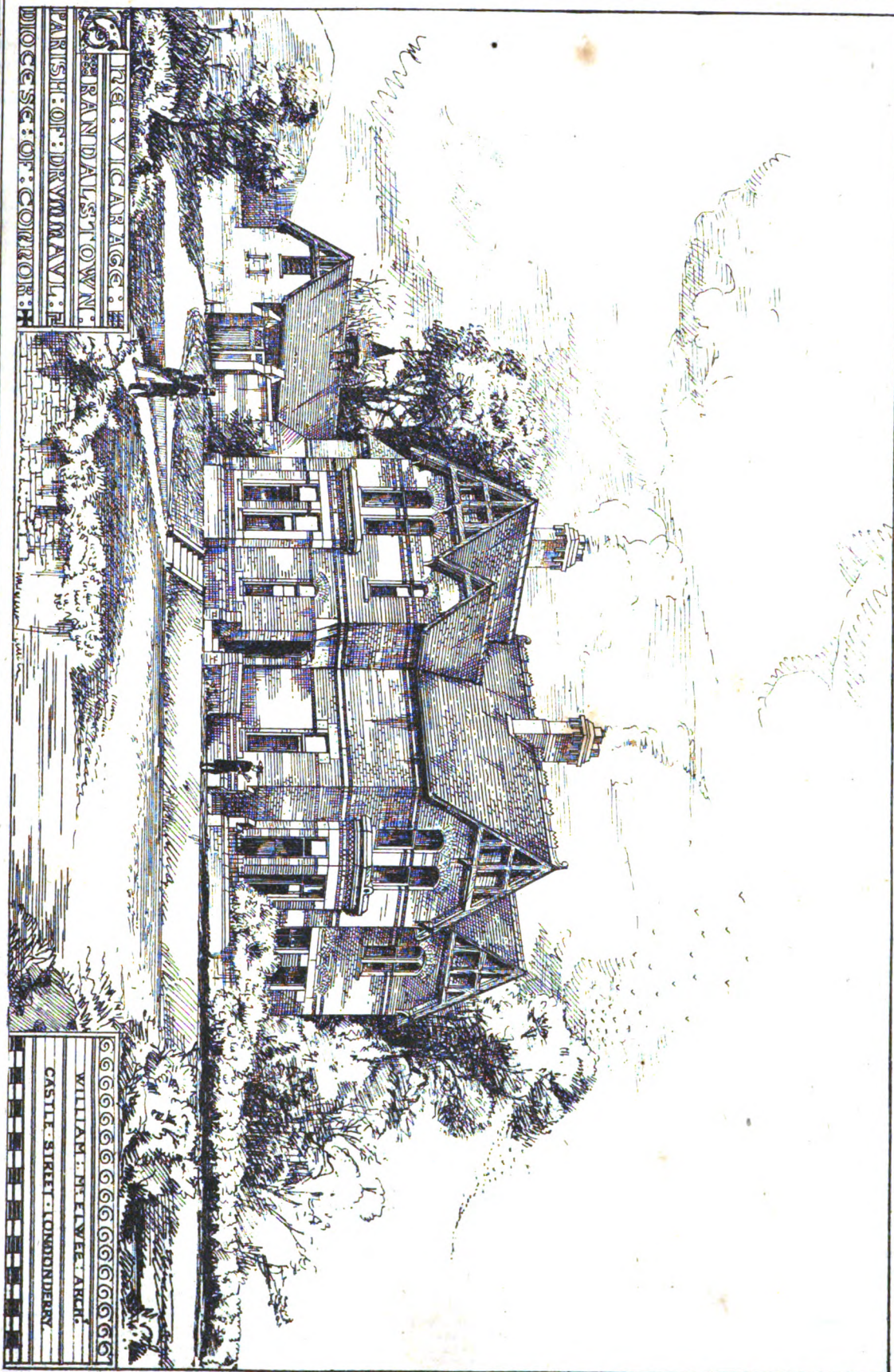
#### A PROPOSED NEW BRIDGE ACROSS THE LIFFEY.

THE question of the re-building or enlargement of Carlisle Bridge has been for many years agitated, and with little success. It is needless for us to remind our readers of the fate of the number of designs submitted by architects, engineers, and artists, some years since, on the invitation of the Corporation; nor is it necessary for us to speak of the capital made out of the exhibition of these designs for the glory of the Corporation. We fail to remember how many times the subject of Carlisle Bridge has cropped up in the Town Council since the foundation of the O'Connell Monument was marked out. The question is once more under discussion, and the following resolution has been moved and carried in the Corporation:—“That the Port and Docks Board be requested to have prepared, as soon as possible, a suitable and economical plan, specification, and estimate for the widening and improvement of Carlisle Bridge; the width to correspond with that of Sackville-street, and the elevation above high water mark to be in keeping with the architectural structures of the locality. That same, when prepared, be submitted to this Council for approval.”

We would certainly prefer seeing a new bridge erected at the foot of Sackville-street than seeing the present one enlarged, if we thought the question of a new bridge further down the river was not to be considered in view of the future. If it be really intended to construct a new bridge further down the river within a definite time, and as soon as

\* A similar complaint of more recent date is made by Mr. Anthony Trollope against the railway travelling, which, since the introduction of the Pullman drawing-room and sleeping cars, has become much more comfortable and luxurious in the United States than in the British Isles.





THE VICARAGE:  
RANDALSTOWN.  
PARISH OF DRYMAYLE.  
DIOCESE OF CONNOR.

WILLIAM MEWEE, ARCHT.  
CASTLE STREET, DUBLIN.





the state of the city finances afford it, the enlargement of the present Carlisle Bridge might be agreed to without much objection. The burdens of the citizens at present are very heavy, and we fear they are on the increase. Although the Corporation by their motion in this instance would seem to be studying economy, it is only a make-believe, for the funds are being extravagantly wasted otherwise.

It is now several years since we in these pages suggested the erection of a new bridge near the Custom House, for the growing wants of the north and south sides of the river, with townships extending and enlarging on either shores of the bay. This want is being felt more fully each year, and despite the supineness of our civic body, the matter will force itself to the front, and a new bridge will have to be constructed. We may well leave the details and surroundings of this bridge of the future to the professional man who may be entrusted with the task, and we care not to discuss whether it should be of iron or stone. If placed opposite the end of Lower Gardiner-street, of course the shipping would need to be pushed that distance down the river. The placing of it at any point below the Custom House would not only entail much trouble but a large amount of labour and expense, besides it would curtail to a great extent indeed the length of the harbour, interfere with the docks, and necessitate new arrangements and new constructions. The harbour, in course of the next fifty years, will possibly be greatly extended, and new wants may and will arise in the next century scarcely to be anticipated in their exact dimensions now. If a greater distance existed between the foot of Sackville-street and the end of Lower Gardiner-street, the new bridge of the future could be fixed at a spot more serviceable to the passengers and vehicles of the city. At present, however, we need not discuss this part of the subject further, but hope that whatever is to be done towards the enlargement and improvement of Carlisle Bridge will be done promptly and efficiently.

Since the above was written, a meeting of the Chamber of Commerce has been held, when the subject was partially discussed, and adjourned until Saturday next, when a public meeting will be called.

#### OPENING OF THE NEW ORGAN, ARMAGH R. C. CATHEDRAL.

ORGAN-BUILDING IN DUBLIN.

THE formal opening of the new organ of the Armagh Cathedral, built by Messrs. Telford and Telford, of this city, and of which we recently gave a full description and illustration, took place on "Pentecost Sunday." There was a great assemblage on the occasion, clerical and lay; Haydn's Imperial Mass being sung by the best soloists from Dublin, with a chorus of 60 well-trained voices. The music consisted of selections from Gounod, Lutz, and Rossini. The chief soprano singers were—Miss Herbert, Miss Lumsden, Dublin; Mrs. Scott Fennell being alto, Mr. Nevin tenor, and Mr. P. Hayes bass. Mr. R. S. Swaby of St. Charles' College, Notting-hill, London, presided at the organ, and Mr. W. H. Telford was the conductor, who introduced a musical programme well rendered. The organ fulfilled every expectation, being one of immense power, combined with depth and sweetness of tone. Having briefly said so much of the musical performance, when, let us ask, will the Irish clergy of all churches, and the owners and managers of other institutions, professional and otherwise, be persuaded or convinced that they can at least procure as good organs of Irish build at home as any they can import, no matter of what compass, cost, construction, or elaborate finish? Messrs. Telford are established in the trade since 1831, and since that period they have built many fine organs indeed, and we do not remember of any

which have not given satisfaction. During the last thirty years several important orders have been sent out of this country by Roman Catholic and Protestant clergymen, under the mistaken belief, in some instances, that efficient instruments could not be had in this city.

Now we are not particularly clannish, and we are advocates for open competition and a fair field for all inside and outside the country, but we cannot understand why native artists and manufacturers of acknowledged and sustained reputation should be so often passed over by their own countrymen. The money in nearly all cases is raised by subscriptions and donations—the humble and industrious classes contributing no small amount.

We trust that a better state of things will soon be observable in this city and through the country generally, and that a better support will in future be given to our native organ builders, who have proved themselves capable of turning out any description of work, from the most simple to the most elaborate.

#### CIVIC LYRICS.—No. LXXXVI.

##### JACK IN OFFICE.

Jack Bounce sprung up like Jack-in-the-Box,  
Whose antics he often apes,  
And talked aloud about Ports and Docks,  
And rivers, and bays, and capes;  
It mattered naught, for he knew just that,  
And followed the beaten track.  
The City guessed well what he was at,  
And gave a long rope to Jack.

A Steeple Jack our Jack he was oft,  
And he helped to fly some kites;  
But he got so scared, when once aloft,  
He shewed of his eyes the whites.  
He moves by force of his moral power,  
But his motions always lack  
The strength to live through the passing hour,  
They're all so very like Jack.

His staple topics are grants and loans,  
And of pledges unredeemed,  
Shelved low down in the valley of bones  
That the prophet saw or dreamed;  
And, 'scaping from 'neath the ribs of death,  
He would move the spirit back,  
To prove that the disembodied breath  
Had its duplicate in Jack.

Dublin has Jackeens of many grades—  
Jack-dandys and Jackanapes,  
Jacks in office and Jacks-of-all-Trades,  
Who are seldom out of scrapes;  
But the greatest mind among them all,  
A thousand to one I'll back,  
Is Slayplus at the City Hall,  
Our ever rolling Jack!

CIVIC.

#### DOWNPATRICK WATER SUPPLY.

At a recent meeting of the Board of Guardians, the report of the committee appointed to inquire into the water supply was read, as follows:—

Your committee beg to report that, having held a number of meetings, and examined a number of witnesses, principally inhabitants of the town, with reference to the supply of water (a copy of whose evidence accompanies this report), they came to the conclusion (as has been already reported to you) that the town is at present very inadequately supplied with water, and that the present wells are totally insufficient and cannot be improved so as to give a proper supply of pure water, and that many of them (as shown by Dr. Hodges' analysis) are contaminated by sewage, and unfit for use. Your committee accordingly came to the resolution (acting under your authority and with your permission) that it would be necessary to obtain professional assistance to report to them where and by what means an ample supply of pure water could be obtained. They inserted advertisements in the newspapers, calling on engineers to send in plans, specifications, and estimates, and offering a premium of £50 for those selected; and received in answer to these advertisements, plans, &c., from Messrs. Kearney and Nolan, and from Mr. Tennent Henry. Your committee have carefully examined these plans, and discussed their merits, and are of opinion that an ample supply of water can be obtained by adopting either of them—viz., 30 gallons per head per diem, for a population of 5,000, at an elevation sufficient to command the highest houses in the town; but, as they find that by the amended plans of those gentlemen, they all propose to take the water from the same sources of supply—namely, from the townlands of Saul and Killyveese, and in their estimate of the cost are nearly similar, that of Messrs. Kearney and Nolan being for the sum of about £5,700, and that of Mr. Tennent Henry for about £6,000, and as none of these gentlemen have had much experience in the construction of similar works, your committee have come to the conclusion to lay both their plans before you, with a recommendation that, before selecting either of them, a competent engineer of experience should be employed to examine them carefully, and check their levels and estimates, &c., and advise on the whole question, as to whether either of these

plans, or any modification thereof should be adopted; and, if not, what other plan would be best suited to the purpose on the following conditions:—1st.—That the water proposed to be used must be proved by analysis to be of pure and wholesome quality. 2nd.—That it must be sufficient in quantity to supply a population of 5,000 at a high level. 3rd.—That the plans, &c., must be sanctioned by the Local Government Board. 4th.—That it must be constructed at a sum not exceeding estimated cost. In conclusion, your committee beg to state that they have made arrangements (with the consent of the parties) to divide the premium as follows:—£25 to Messrs. Kearney and Nolan, and £25 to Mr. Tennent Henry; and, should any of them be appointed to carry out the work, the £25 to merge in the commission on the cost of same.—Signed on behalf of the committee, WILLIAM BOYD, Chairman.

Mr. Boyd stated that, with respect to the employment of an engineer, he had to suggest that the matter be left to the Local Government Board, who would, of course, send an engineer to examine into the plans. There was another matter he had to mention. He understood that Mr. Henry had made a complaint that his plans had been investigated by the opposing parties before they sent in theirs. He (Mr. Boyd) was quite unaware whether that was the case or not, nor did he know what steps Mr. Henry wished to take in the matter; but he and Mr. Nolan were both here, and they could be heard. There was yet another matter he had to mention. Just before he came there, he had received a letter from Mr. Thomas Neill, proposing to bring the water from Mourne mountain, and offering to perform the work for £5,890.

Chairman—Do you wish his proposal to be sent to the Local Government Board, too?

Mr. Boyd—I don't see why it should not.

Mr. Murland—Is it sent in seriously?

Mr. Boyd—I think so.

Mr. Gracey—I would just like to state that I believe there is a supply of water required, but the great difficulty is this, that there is a great part of the inhabitants don't want water at all, and I think it is a great hardship they should be taxed for what they don't want. As near as I can go, I believe there are about two-thirds of the town where water is not required at all.

Mr. Tennent Henry (who, with Mr. Nolan, was present during this discussion) here said that he wished the plans as originally lodged with the committee to be sent up to the Local Government Board.

Mr. Nolan said that all the plans were lodged in Mr. Smyth's office for public inspection, and he had just looked over Mr. Henry's plans after his own were lodged, but he never adopted anything from them. He (Mr. Nolan) had improved his plans, but he did so at the suggestion of the committee. Mr. Henry had amended his plans also.

Mr. Henry—I deny that my scheme was ever amended.

Chairman (to Mr. Nolan)—Before you gave in your plans did you see Mr. Henry's?

Mr. Nolan—No, sir; it was after I gave in my own.

Mr. Pilson—It is better for me to state as a member of the committee that both were amended.

Mr. Henry—I must state—

Mr. Pilson—You must not interrupt me. In the presence of the chairman and the committee, Mr. Henry asked the sum of £500 to be added, and, if that is not amending, I don't know what is.

Mr. Carson—That was not an alteration of the plans; that was merely altering the estimate.

Chairman—I think it is better to let all the plans go up.

Mr. Russell—Mr. Nolan says the plans were in the county surveyor's office, and were there for the inspection of everybody.

Mr. Gracey—I was present when the plans were submitted to us, and I am not aware that there was any change made in them, but both of them were directed to make some additions, and I think I remember Mr. Henry's was to be sent back about some cutting. I believe the two plans are the same as those submitted at first.

Mr. Boyd—Mr. Nolan sent in quite a different plan from the first one. His plan of the reservoir is totally different from what he proposed at first.

Mr. Nolan—That was at the suggestion of the committee.

Chairman—I think that all the plans must go up—that is, Mr. Henry's plan, and Mr. Nolan's two plans.

This agreed to.

PRIZES FOR LABOURERS' COTTAGES.—The Leinster Cup and Provincial Medal, offered by the Royal Agricultural Society of Ireland, have been awarded to Lord Castletown, for four cottages built at Coolderry, Queen's County. No medal was awarded for the province of Ulster, as the judges did not consider the only cottages entered—those of a gentleman in the county Donegal—of sufficient merit. The terms of the report on the cottages referred to were severe. In one case an entire family of ten persons had to sleep in one room.

## ARMAGH LUNATIC ASYLUM.

THE Board of Governors have resolved to proceed with the much-needed improvements at this building. Mr. Boyd, architect, Belfast, waited upon them, and explained his plans. The improvements will consist principally of changes in the existing buildings for the convenience of the inmates; a comprehensive system of sewerage, with arching over the offensive open ditch or stream which forms the sewer outlet of the city, running through a portion of the asylum grounds; the collection, storage, and utilisation of rain water off the roofs; accommodation for 110 additional patients; a chapel, recreation-hall, &c. The cost of the works will be about £11,000.

## PROPOSED UNION OF ARCHITECTURAL SOCIETIES.

Efforts have been making for some time past to lead to the affiliation or union of not only separate architectural associations in London with the British Institute of Architects, but also of provincial societies, including those in Ireland and Scotland. On the threshold of our remarks, let us bluntly say we cannot endorse these proposals for various reasons, and mainly because we do not believe it will be conducive of any particular benefit to the profession as a whole, or to architectural progress or practice. There can be no objection to a closer bond of friendship between the London and the provincial bodies than what exists now, and more constant interchange of thought, but the union spoken of and outlined is nothing more than a piece of architectural centralisation, which we trust will never be effected. If practising architects resident in Dublin, Cork, Belfast, Edinburgh, Glasgow, Leeds, Liverpool, Manchester, or elsewhere, desire to become members of the British Institute of Architects, let them take the necessary steps for becoming so as individuals, but if they have any pride, dignity, and independence as provincial and professional men, and as members of local bodies, let them preserve the integrity of their own institutions and keep them intact. We do not speak on behalf of the Irish Institute, whose moribund condition for a long time has been so humiliating to us, and whose decadence we have regretted; but as a professional journal we dare to speak in the name of the profession and other provincial bodies within and without the island, and we say that the proposed union would be a most suicidal policy to adopt. We trust that the Architectural Association of London, and all the provincial architectural associations, will respectfully decline to entertain the proposal, even on the basis suggested by Mr. Henderson, the hon. sec. of the Irish Institute. We were indeed sorry to witness such a decadence of native spirit as that exhibited in the suggestions or overtures made in Mr. Henderson's letter, for, stripped of its surplus phraseology, it means nothing more than the utter collapse of the Irish Institute and a confession of weakness, and an open acknowledgment, as it were, that one institute in London is sufficient for all the purposes of the profession in the Three Kingdoms. We say boldly that the proposal is impracticable; and even were it practicable it would be highly undesirable.

We do not think that either the midland or northern provincial societies or the Scotch ones will betray any desire to follow in the wake of our Irish body, or to endorse the opinions of a few individuals connected with the London bodies. The Architectural Association of London has done a large amount of useful work, and maintained a position of dignity and generous rivalry with the parent society. The position of the association in London was in nowise an anomalous one, amid a population of over three millions. There was ample room not only for its members, but a wide field for their architectural studies and practices. There was no necessity for them clashing with their brethren,

and, being embodied apart and working apart, the existence of the two bodies was a spur to the increased exertions of the members of each.

Now, let us ask in sober earnest, does the Council of the Irish Institute, or, to speak more plainly, do the 86 Fellows, 20 associates, and 10 students of our Dublin body seriously believe that the proposed amalgamation or union with the British Institute will revive the Irish Institute, double or treble its members, add more to its influence among their countrymen and the building profession? Does the Irish Institute think that members now who cannot be got to attend a meeting or pay their subscriptions, or prepare a paper once in the year, will, in the event of a union, suddenly grow rejuvenescent and industrious, and fork out a double subscription annually for the privilege of attaching the initials of the two bodies to the end of their names? We do not believe it. For all useful purposes the local functions of the Dublin body have for some considerable time almost ceased, and when "merged into the parent institute" not a throb will be heard, unless it comes by a kind of intermittent professional galvanism.

There is plenty of room for a successful institute in Ireland, if a proper spirit of organisation was evoked; and there is ample room also for kindred architectural associations in the four provinces. Let the Irish provincial societies nominally affiliate themselves with the central body in Dublin, whenever that body is re-organised; let the Scotch and English provincial societies do the same with their parent institute in the Scotch and English metropolises, but let them at the same time preserve their organisations intact. There are various matters connected with local architectural and building practices common only to these places, and widely different from the usages of large cities.

Property has its duties as well as its rights, and so has architectural practice. There are clients' grievances, architects' grievances, builders' grievances, and workmen's grievances, and although there is a general resemblance in them all to each other over the kingdom, the local practitioner is the only person who can grasp and understand the details without trouble in his own district. Let there be a general amalgamation of architectural societies over the kingdom, and what will be the result? Despite of the most careful supervision and management, the Royal Institute of British Architects would be converted into a sort of court of appeal to discuss, if not to settle, a multitude of questions connected with architects', clients', builders' and workmen's rights and wrongs, the question of competitions and commissions, metropolitan and provincial supplying at the same time more work of a continuous Tichborne trial.

We hope we have nearly heard the last of this fatuous scheme of universal affiliation. The Royal Institute of British Architects has more work to do at present than it knows how properly to transact, and many of its members are not agreed among themselves, and some of its oldest and most honoured and respected members rarely visit the Institute, owing to the way business is transacted there of late. The members and council of the London Architectural Association will act wisely to continue the course they have pursued in maintaining their body intact, and the provincial societies could not be tendered more fitting advice than to preserve their local organisations.

We may return shortly to a consideration of this affiliation question from other points of view, and show what could be done in Ireland if architects had the interest of their profession or country at heart. The transfusion of the blood from the robust living to the sinking has been known to save life, but we doubt in the success of the experiment when the conditions are reversed—the dying cannot impart strength to the living, and the latter cannot but suffer from the bearing of a diseased branch or limb. Like under the

social contract, if a union at all be attempted it should be under healthy conditions, but apart from similes and any one particular local case, the proposed Architectural Union we look upon as a grievous mistake, and rife with the elements of mischief.

## THE POLLUTION OF RIVERS.

From a somewhat hurried glance over the provisions of the Marquis of Salisbury's Pollution of Rivers Bill, we are of opinion that it is a sound and wholesome measure with very few defects, and these small of their kind. Of course we speak of the Bill in its present shape, for it is impossible to say what form it may assume when passing through committee when the passage of it is beset by the amendments of those who wish to protect "vested interests," and the evils which these interests cover. If the law is to be declared and enforced according to the present provisions of the Bill, our rivers, brooks or streams will be kept free from pollution, as the putting into them of any solid refuse, rubbish, cinders, or other waste putrid matter interfering with their flow or fouling their waters will be actionable, or an offence against the Act. Noxious liquids of all kinds, from factories erected within the last twelve years, are legislated for by a sort of saving clause of two years' grace being allowed to provide suitable means to render such harmless. Drains for conveying sewage come under like provisions, and all drainage for works of more than twelve years' existence. The administration of the law is in this Bill simplified, and it is provided that local authorities shall give facilities for manufactories draining into sewers, and compensation, if any, to be settled by arbitration. Under our present Sanitary and Health Acts, a law is laid down which it is impossible in some cases to enforce. Some factories are in existence in places where no proper system of drainage is in operation, and their foul refuse for years is polluting rivers and streams which are the source of a town's water supply some miles distant. It is certainly the duty of the local authority to facilitate sanitary conditions, and not to throw any obstacles in the way of a manufacturer who is desirous of complying with the law, but is often unable to do so through the action or want of action on the part of the same authority. A manufacturer has a right to provide an outlet to a certain extent for any foul refuse from his work, but it is not to be expected that he is to provide for the drainage of a village or town in view of preparing a safe escape for himself when debarred from using ordinary rivers and streams as outfalls. Under this new Bill, sanitary authorities are empowered to enforce the Act in their respective districts, and the Local Government Board is also empowered to enforce the Act in case of need.

A very good provision is contained in the ninth clause, which provides for a scheme of watershed districts. Under this clause the Local Government Board is empowered by provisional order to constitute a conservancy authority for the entire of the catchment area of any river and its tributaries, and any conservancy authority will have like powers for enforcing the provisions of this Act, as sanitary authorities have before provided. This conservancy authority will be composed of representatives of the several sanitary authorities having jurisdiction within their area, the constitution of the new authority being regulated by the Local Government Board. This is an admirable clause if it remains intact when the Bill is passed, and no doubt it will extend the field of the sanitary and civil engineer, as every conservancy authority will have need for the services of a permanent and responsible professional engineer. Though we highly approve of this Bill as a whole, we do not consider it by any means an exhaustive one, for it needs no very deep insight or foresight to see that the Bill will not be very long in operation (if it

passes) until it creates new wants, and further powers will be found necessary for dealing with the sewage question, and matters bearing upon the purity of our future water supply.

In this Bill offences against the Act will be restrained and punished by a summary order of the county court, and the powers given by the Act are cumulative, or, in other words, they are given in addition to, and not in derogation of, those conferred by any other acts of Parliament. In the London metropolis the Thames and Lea conservancies and the Metropolitan Board of Works will not be prejudicially affected by the operation of the Act. We regret very much that this new Bill applies only to Great Britain and not to Ireland, for although this country is not a great manufacturing one, both in Dublin and Belfast and other towns and cities in this island, pollution of rivers exists to a great and grievous extent. We trust that some of our practical and sensible-minded members will move that the Act may be applied to this country.

Pendant to the above subject, a public conference was held on the 24th ult., at the House of the Society of Arts, under the auspices of the Fisheries Preservation Association, to discuss the provisions of the Government Bill for Preventing the Pollution of Rivers. The chair was taken by the Duke of Northumberland, who was supported by, amongst others, Viscount Powerscourt, Sir Robert R. Torrens, Professor Willis Bund, Mr. Brudenell-Carter, Mr. Henry Clark, &c. Letters of sympathy with the objects of the association were read from the Earl of Longford, the Earl of Devon, Lord Saltoun, Lord Ebury, the Lord Provost of Edinburgh, and the Lord Mayor of Dublin.

The Chairman said the object the conveners of the meeting had in view was to obtain the opinion of those present to the best method of treating the Bill introduced by the Government with respect to the pollution of rivers. It appeared to him that the Bill had been introduced with the honest intention of putting a stop to evils which had become intolerable. In introducing a Bill of this kind, the interests of many persons who considered that the old privileges they exercised would be interfered with had to be consulted. Many of these persons could plead a right of prescription, which, although not really a right, was still very much to be weighed and considered. With respect to the present Bill, it differed somewhat from that which he (the chairman) had introduced and carried to a second reading in the House of Lords. His own Bill was a good deal more stringent than that of the Government, and he could not help thinking it would have afforded a more complete cure for the evils complained of than the present measure. In one part of the Government Bill there was a remarkable omission, and that was as to standards of purity. The provision as to having matters decided in the county courts had this advantage, that these courts could be had recourse to readily and without great expense. It was probable, however, that the Marquis of Salisbury was of opinion that an appeal from the decision of the county court judge would be desirable. His Grace went on to say he did not hold this view.

Sir Robert Torrens then proposed—"That this meeting cordially welcomes the introduction by her Majesty's Government of a measure dealing with the pollution of rivers; and is of opinion that, with certain important amendments, the Bill introduced into the House of Lords will be a considerable assistance in purifying the rivers of this country."

Viscount Powerscourt seconded the resolution, which, after a discussion in which Mr. S. W. Maxwell, Professor Bund, Mr. Snell, &c., took part, was carried.

A committee was then appointed to wait on the Marquis of Salisbury with respect to the amendments necessary to render the Bill a satisfactory and efficient measure; to

watch the progress of the Bill through Parliament; and to take such steps as may be necessary to secure the insertion of the required amendments.

#### THE PUBLIC HEALTH BILL OF 1875, AND THE PUBLIC HEALTH ACT OF 1872.

We fear that this well-intended Bill will turn out unsatisfactory. It leaves several matters untouched, to which we have alluded on a former occasion, and the amendments and alterations in the law its effects are far too trifling for it to be considered an amending Bill. As a consolidating Bill, however, it will be valuable as far as it goes, as it will put an end to various Acts full of clashing clauses, a fruitful source of confusion, though often agreeable to lawyers and litigants. In the passage of the Bill through committee, Dr. Lyon Playfair observed, in respect to the defects of the Bill, that great evils remained to be remedied, and amongst other things that were required, the most urgent was an audit of the death-rates of different districts. He intimated also that he reserved to himself the right of calling attention to the necessity of additional legislation. Mr. Slater-Booth, on behalf of himself and the Government, did not contend that the Bill was much more than a consolidating Bill, saying it would be quite impossible to embody all the alterations that were proposed. In regard to the complaints as to the haste with which the Bill was being pushed forward by the Government, he explained that the amendments now proposed were, with a few trifling exceptions, exactly the same as had been given notice of two months ago. Again he says, that as soon as other more pressing matters had been disposed of, the attention of the Government would be directed to the subject again, and they would be ready either to issue a Royal Commission, or proceed in any other way that was found desirable.

This confession on the part of Mr. Slater-Booth, reveals more than it expresses, and is an acknowledgment of the inability of the present Government to carry out in their entirety the sanitary measures that they foreshadowed. It is "cut-and-come-again" policy and treatment. Some sensible people would think that a Royal Commission should precede the drafting and passing of a complete Public Health Bill. But the Government are pressed, and they are, perforce, obliged to pass their sanitary programme in the best shape they can. Well, a little good is better than no good at all, though in the matter of public health, half measures are full of danger. After hearing the assurances of Mr. Slater-Booth, what less could Mr. Stansfield say than that he trusted the Bill would pass, and he, at the same time, took the opportunity of defending his (Mr. Stansfield's) policy in entrusting to boards of guardians the execution of the Public Health Bill he introduced some years ago.

We have had time to judge of the working of the Public Health Act of 1872 for England, and the almost similar measure for Ireland last year, and we must say that both of them are failures. A return has been printed a few days ago to an order of the House of Commons, dated August 5th, 1874, for copy of reports of Local Government Board inspectors on the working of the Public Health Act of 1872. Our esteemed contemporary the *Builder* in giving a digest of these reports, which are ten in number, observes:—

As regards the outcome of the reports in question, there is one point, and one alone, on which the reporters are unanimous. Differing in tone from an optimist admiration of the wisdom of the measure, to blunt indication of its utter inefficiency, these documents agree in exhibiting the most complete want of system, purpose, or organisation that is possible to conceive.

At the finish of its digest of the reports, and in summing up the outcome of the legislation of 1872, the *Builder* concludes:—

If any person who takes an intelligent interest in sanitary reform can entertain the idea that the act

of 1872 is very different from a mockery and a delusion, his views of cause and effect must be different from our own. There is one point, however, which does not come to the surface on the reports (at least otherwise than in a negative form) that is far more vital than are all the indications of want of plan, want of purpose, want of system, and want of organisation that crop out between every paragraph. We are not criticising, let it be remembered, the individual reports. It may well be the case that each of them is the work of an able and educated man, anxious fully to do his duty to his country—but left altogether at sea so far as instructions as to that duty are concerned. Great research, patience, and skill are manifested in several of the reports; although these qualities, as being unguided by any central principle, are to a great extent misdirected. It would have been more instructive to adopt the worst form of report out of the ten as the model for all, than to invite this perplexing variation of method. But what is cardinal in the whole matter is this. The ten inspectors all appear to consider that the sanitary officer required is merely a scavenger, a doctor to indicate disease, an inspector of nuisance, at 30s. or 40s. a week, to detect nuisances, and a scavenger to cart them away! "Make a drain," is the advice. "Where is it to go?" inquires the local authority. "Wherever you like," is the tactful reply; "somewhere or other—make the drain from the house, and the outlet will take care of itself." Now, while it is true that the polluting and infecting power of the population of the country is as yet but small if distributed per acre, it is very large when concentrated in any given district, ultimately to be drained by a river outfall. On the one hand we are protesting, very properly, against the wasteful and wicked pollution of rivers. On the other hand, we are calling on all urban authorities to drain their districts. While we insist on these two objects, each excellent in itself, without even contemplating the third part of the problem—the operations to be interposed between taking the sewage from the towns, and conveying, or not conveying it, into the river—we are really using two acts of Parliament in order to enforce the construction of enormous cesspools all over the country. From this view of the case there is no escape. Make the drain as long as you like, but stop it up at the end, and you are doing more harm than good by the concentration of venom. It is on this view that we have always urged that it is necessary, in the first instance, to have the counsel and aid of the engineer. We cannot recall a single word in the blue-book which intimates that either inspector or Local Government Board has ever thought that any engineering questions were involved in sanitary reform. So long as this is the case it will be an open question whether much of our outlay is not doing more harm than good.

We can endorse the above opinions without hesitation, having witnessed the working of the machinery of the Act of 1872 in England, and its counterpart in Ireland. The right men are in the wrong places, or rather, the round men are in the square holes, and all the steam that the power of law can put on, cannot direct or drive the machinery with safety. The working staff not only come into collision with each other, but, sanitary and non-sanitary, rural and urban boards are in antagonism. The average intellect of our union sanitary boards (the poor law guardians) is not of a high standard, but even were it of a fitting calibre, in regard to mental power, there are other considerations which need to be weighed. Is it not a fact that in nearly all our newly-constituted sanitary boards, there are members who have a direct and personal interest in obstructing sanitary legislation because it trenches upon their pockets? The inaction observable on the part of the ruling majority of an obstructive board, like the evil communications that corrupt good morals, travels down the line from the medical officer to the sanitary inspector, and from him to the dustman or scavenger; for, is not the staff the servants of the board? and, owing to their appointments and the nature of their offices, it is next to impossible for them to act with perfect independence. If they did, they would often be found reporting the evil doings of their own masters, who are often the greatest offenders against the sanitary Acts. It is the machinery that exhibits such defects that needs to be amended, and, when amended, it must continue to be worked with energy and fitting intelligence.

## FOLEY'S MODELS.

THERE is at present on exhibition at one of the rooms of the Burlington Arts Club, London, a collection of the original models and casts made as studies for a number of our native sculptor's works. Among the more important models are the statues of Lord Clyde, Lord Herbert, Stonewall Jackson, Lord Dunkellin, Mr. Fielden, the sitting figure of Sir Charles Barry, and the equestrian statues of Lord Canning and Sir James Outram. Speaking of the latter two, the *Builder* (which speaks highly of all) remarks:—"It is rather curious to compare the model of the equestrian portrait of 'Lord Canning,' dating from some time back, with that recent magnificent work, 'Sir James Outram'; between the quiet and unobtrusive treatment of the former and the extraordinary energy of the latter, there is evidence of half a lifetime of endeavour and progress in the art. It is not every artist who, after a tolerably long career, could point to his last work as his best, which the Outram statue may be said to be; as a portrait statue, at least, of the equestrian type, we should doubt whether it has ever been equalled for intense yet unexaggerated force in action and expression."

It has generally been acknowledged that the Outram statue is a truly magnificent work of art. An exhibition of Foley's models and casts in his native city, comprising his principal representative Irish and English subjects, would, we are sure, be hailed with pleasure by the general public, apart from the interest and value it might possess for art workmen and students outside or in connection with our Art Schools.

## PUBLIC APPOINTMENTS AND PUBLIC INSTITUTIONS.

THE second report of the Civil Service Inquiry Commissioners has been presented to Parliament. The present report has reference only to the appointments in various offices requiring special and technical qualifications, in such establishments as the British Museum, the Department of Science and Art, the Geological Survey, the Department of Mining Records, the School of Mines, the Edinburgh Museum, and the Public Record Office. The report is not without interest to the Civil Service of this country, for public servants and officials may know something on reading it, and anticipate more. In cases of a special character, involving the necessity of qualifications wholly or in part professional, the commissioners recommend that the principle of open competition should be waived, and that the appointments be filled on the joint responsibility of the head of the department, the Lords of the Treasury, and the Civil Service Commissioners. At the risk of overstepping the limits of their instructions, they cannot refrain from observing that the salaries of the staff appointments in the British Museum, and in some cases in the South Kensington Museum, appear to be small, with reference to the nature and importance of the work to be discharged. In making this remark they have not overlooked the fact that some of the officers occupy official residences. The commissioners are of opinion that these institutions should be organised in such a manner, and with such a scale of remuneration, as would attract to them men of high literary, artistic, and scientific culture. The present arrangements for the employment of the junior officers in the Library of the British Museum might with advantage be reconsidered; and if a staff corresponding to the lower division of the General Civil Service were introduced into the Museum, and printing instead of transcribing were freely resorted to, a considerable saving of expense would probably be effected, which would meet the increased cost of a small number of well-paid officers of the higher grades. As regards temporary service, there is no reason why the practice of obtaining assistance of a special or technical character for such purposes as aiding in examinations, making up new catalogues, or arranging specimens, by the occasional employment of qualified persons from outside the service, should not be continued, provided the permanent force is insufficient, or cannot furnish the necessary qualifications. In such case the remuneration should be in proportion to the nature and value of the work. With respect to the Public Record Office, the commissioners see no reason why it should be treated exceptionally. The recommendations contained in

their first report seem no less applicable to this than to other offices, as the knowledge of languages which is required by the clerks could easily be made a special condition for appointment. The commissioners have also taken some evidence from the civil assistants of the Ordnance Survey. Owing to the temporary nature of the survey work, no appointments to this class since 1870 carry any claim to superannuation, nor are the persons employed required to pass any examination before the Civil Service Commissioners. "Under these circumstances," the commissioners say, "we think that they scarcely come within the terms of the reference to us by the Chancellor of the Exchequer, nor are we of opinion that the nature of their employment admits of their being included in any general scheme for the Civil Service." The condition of legal officers is under the consideration of a separate committee, to which the commissioners have referred the evidence tendered to them by the representative of the Solicitor's Department of the Post-office. That evidence they had received before they were aware of the appointment of this committee. "From the foregoing remarks," say the commissioners in conclusion, "it will be seen that, in our judgment, the plans recommended in our first report can be adapted to the scientific and technical departments of the State, and to the appointments in various offices requiring special and technical qualifications without material modification."

We doubt if this can be looked upon as a satisfactory report. It certainly indicates some reform, but the improvement will, we fear, be a long time on the road for those who have reason to remember the proverb—"Hope deferred maketh the heart sick."

## THE PLANS FOR CORK DISTRICT LUNATIC ASYLUM.

WE are in possession of some additional particulars in respect to the above, and the differences existing between the engineer and architect. We do not think it desirable as yet to offer a decided opinion, but at the opportune moment, which may be expected to soon arise, we will not hesitate to do justice as between the architect and engineer.

## LAW.

## QUEEN'S BENCH.

## THE SLAUGHTER-HOUSE NUISANCE.

*John Hall Cooper v. John Rooney and others*.—This was an action to recover possession of the premises, 78 Talbot-street, on the ground of an alleged breach of covenant. Defendant held the premises, which are at the rear of No. 70 Gardiner-street, and which were formerly a coach-house and stable, from the plaintiff for a term of fourteen years from 1871. The lease contained a covenant that the lessee should carry on no noisy, offensive, or obnoxious trade on the premises, and this covenant it was alleged had been violated. Defendant pleaded that at the time of the execution of the lease, plaintiff was aware that he intended to carry on the trade of a coachmaker there; that subsequently in order to avoid loss he was obliged to divide the premises into two shops, one of which he let to a confectioner, and the other to a butcher, and that the change so made in no way depreciated the value of the premises in question. Witnesses were examined to show that the butcher's shop was offensive and a violation of the covenant. Other evidence was adduced on the opposite side to show that there was nothing objectionable in such a shop. The Lord Chief Justice, in the course of the hearing, said it was no wonder the death-rate in Dublin was so high, and Mr. Heron, Q.C., on the part of plaintiff, said it was a disgrace to Dublin that any slaughter-houses should be allowed within its ambit. On the Continent the slaughtering of cattle was conducted outside the walls of the cities; and it was against the public health that slaughter-houses should be licensed in Dublin, and, he supposed, a tax paid for them to the Corporation. Counsel maintained that the trade of a butcher was an offensive one in the neighbourhood in question. If not, the next thing, he contended, was, that the Liffey itself was not a nuisance at present! A proceeding was now pending before Mr. Dix, at the suit of the Corporation, to compel the Port and Docks Board to clean the Liffey. At the conclusion of Mr. Heron's remarks, the Lord Chief Justice expressed his pleasure at hearing that action was taken at last against the Corporation in respect to the Liffey nuisance. The jury found for plaintiff.

## NOTES OF WORKS.

**CONSECRATION OF A NEW CHURCH.**—On Monday, 24th ult., the new church at Aghabog, in the diocese of Clogher, the erection of which has been recently completed, from the designs of Mr. G. C. Henderson, was consecrated by the Lord Bishop of Kilmore. It is in the Early English style, and has been erected by Mr. John Maguire, Newtownbutler. The cost was about £15,000.

An esteemed correspondent, writing from Ballinrobe, informs us that a new R. C. church is in course of erection at the village of The Neale, contiguous to Ballinrobe, from the designs of Mr. J. J. O'Callaghan, of Dublin. The contractor is Mr. Stannus. The first stone was laid by the archbishop of the diocese during the past week. The funds have been provided by the residents of the neighbourhood, aided by donations from the parish priest (the Rev. J. O'Malley) and the landlord, Lord Kilmaine. Our correspondent also states that a branch bank for the Ulster Banking Company is being built in Ballinrobe, which will be a great ornament to that rising town. The cost of the latter building will be about £3,000; of the former over £2,000. We are glad to note progress in South Mayo.

**NEW R. C. CHURCH, BESSBROOK, COUNTY ARMAGH.**—This church, which is to be opened on next Sunday, is built in the form of a Latin cross, and consists of nave and chancel, with north and south transepts. The length inside is 80 feet, the breadth at transepts 86 feet, and at nave 28 feet. The height to wall plate is 24 feet, and to ridge 44 feet. The style is Early Pointed Gothic of the fourteenth century. There are three entrances, each of which has a porch with folding doors, and a niche and window. The roof is open-timbered, having direct and diagonal framing, with ribs springing from granite corbels. The principals are peculiarly constructed, so as to gain strength and lightness; and the ceiling is finished with yellow pine paneling. The main cornice is deeply moulded with pitch pine, as also the benches. These have channelled backs and solid ends, sunk and stop chamfered. The chancel rail is pierced and cusped, and capped with moulded oak. The roofing, ceiling, and benches are stained and varnished. The outside facing of the wall work is granite, with cut-stone base and sills, and fire-brick dressings. The plans were supplied by Mr. Richard Hynes, architect, Newry; and the works were executed partly by day-work and partly by contract under his superintendence, at a cost of about £3,000.

Moyriesk House, near Quin, County Clare, the residence of J. F. Vesey Fitzgerald, Esq., D.L. (which was destroyed by fire about a month since), is about being rebuilt from the designs of Mr. W. Fogarty, F.R.I.B.A., architect.

## THE NEW TEMPERANCE HALL, TOWNSEND-STREET.

CONCERNING this building, alluded to in a recent issue, of which Mr. Frederick Morley is the architect, and Mr. George Tyrrell the builder, a daily contemporary says:—"The structure will be an ornament to the street; it contains every accommodation that the limited space and funds at the disposal of the committee would permit. The building is entered on the ground floor by a handsome porch and vestibule, and contains a hall 68 ft. by 27 ft. 6 in. At the far end is a platform with convenient kitchen under. There is also on this floor committee and cloakrooms, &c. On the first floor is a reading-room, 81 ft. by 18 ft., a refreshment room, public bar, bookstall, smoking-room, lavatory, &c. On the second floor is a club-room the same size as reading-room, a committee-room, waiting lobby and lavatory. On the third floor are living rooms for the caretaker. In the basement will be fitted up baths, &c." The total cost of the works will, it is stated, amount to £1,500; to assist in defraying which a bazaar was held in the Exhibition Palace, and which was very successful.

**DONEGAL GRANITE.**—Our readers may remember that rough and polished specimens of these building stones were exhibited at the Dublin Exhibition by Mr. William Harte, county surveyor of Donegal, the proprietor of the quarries. We are pleased to learn that there are no natural difficulties in the way of the project of developing these beautiful granites, and we may hope soon to see an increased demand for them.



## BOOKS RECEIVED.

*Studies in Design for House Decorators, Designers and Manufacturers.* By Christopher Dresser, Ph.-D., F.L.S., F.E.B.S., London: Cassell, Petter, and Galpin.

We have received Parts VI. and VII. of these "Studies" in colour. Chapter VI. treats on the means by which repose is attainable in decoration, and the next chapter on the necessity of newness of style in ornament. There are given some good designs for dadoes, friezes, wall or dadoes pattern, powderings suited for stencelling on walls and dadoes, rich ceiling patterns and other ornamental devices and details. Several of the plates are admirable examples of what they illustrate, and we can commend them to the study of architects, art students, operatives, and others.

*May's British and Irish Press Guide for 1875.*—This is the second year of publication of this admirably-compiled "Guide." New features have been introduced, amongst which we notice the date of establishment of every newspaper and periodical, in all cases where it has been possible to obtain information. As a guide to advertisers seeking suitable media for their announcements, this work must be appreciated.

## LIFFEY PURIFICATION.

CORPORATION v. PORT AND DOCKS BOARD.

The case stated for reference to the Court of Queen's Bench in the above was opened yesterday before the full court. The law points as brought before the Magistrates of the Southern Divisional Police Court were again argued at considerable length, and as we go to press the case is still at hearing.

## HOME AND FOREIGN NOTES.

**AGRICULTURAL STATISTICS.**—The Registrar-General requests us to state that the collection of agricultural statistics throughout Ireland, for the present year, will commence on this day. He solicits the aid of all who can in any way assist in the procuring of accurate information for the enumerators.

**THE GRATTAN STATUE.**—At a meeting of the Memorial Committee, held last week, it was resolved—"That the sub-committee appointed at the last meeting be authorised to enter into proper arrangements in their discretion for the completion and erection of the pedestal." In reply to Sir Wm. Wilde, the Hon. J. P. Vereker, said the statue had been successfully cast, and was now undergoing the process of burnishing. He had the authority of the trustees of Mr. Foley for saying that the statue was an eminent success in every respect. Owing to the large number of works which Mr. Foley left unfinished in his studio, the committee did not like to push the trustees too hard; but he could state that the statue would be ready before the committee would be ready to receive it.

**IRISH ART.**—Mr. O'Connor has finished the panels for the Duchess of Westminster's boudoir, at Eaton Hall, and his studio was favoured with a visit by her Royal Highness the Princess Louise and the Marquis of Lorne on the 22nd ult., to inspect the same. The artist, we may add here, was a student of the Royal Dublin Society's Art School, and is at present making a rapid progress in reputation. His picture, "The Thames Embankment," was exhibited last year in London, at the Royal Academy, and was to be seen this year on view at the Royal Hibernian Academy. Mr. Angelo Hayes's picture, "The Installation of the Prince of Wales as Knight of St. Patrick," was exhibited to the Prince and other members of the Royal Family at Marlborough House, London, on Tuesday, 25th ult.

**SALE OF CORPORATE PROPERTY.**—A special meeting of the Town Council, Limerick, was held on the 25th ult. in the Town Hall, the Mayor presiding, to consider the propriety of disposing of the property of the Corporation to pay off its debts. The Town Clerk read a letter from Messrs. Stephens, of London, mortgagees of Corporation property to the extent of £30,000, asking for payment within two months, in default of which they

intimated that they had instructed their Irish agents to apply to the Landed Estates Court for an order for sale of the property. Mr. Spillane, who gave notice of motion for the sale, now inevitable, and that carriage be retained in the hands of the Corporation. Mr. Phayre seconded the motion. Mr. M'Donnell moved as an amendment that an application, as agreed to previously, be made to the Lords of the Treasury for a loan on the Corporation property. Mr. Phillips seconded the amendment. After considerable discussion, the resolution for the sale of the property was agreed, but that it would not be acted on until an application to the Lords of the Treasury for a loan be determined.

**MAIN DRAINAGE OF THE CITY.**—The Lord Lieutenant, in a letter to the Corporation read at a late meeting, stated that he will recommend the Treasury to lend the Corporation £500,000 instead of £350,000, to carry out the Main Drainage Works as soon as they promote a bill to amend the act of 1871, but that the Government will not introduce any such measure for them. The letter of the Viceroy was, on resolution, referred (along with the memorial of the Citizens' Committee) to the Main Drainage Committee, with instructions to inquire and report to the house as to the best means, under any circumstance, of carrying out the scheme for the Main Drainage of the city. The Main Drainage staff expenses are still going on, although the real work is now postponed for a time. It will not be very long until we witness further evolutions and cross-purposes, and—well, enough for the present.

At last week's meeting of the guardians of Naas Union, it was resolved—"That the alterations proposed to be made in the workhouse chapel be carried out according to the plans furnished by Mr. Brett, with the exception of the twenty-two benches or seats."

**WEXFORD.**—At a meeting of the Town Council, the clerk read a letter from the Local Government Board relating to the proposed waterworks. It stated that the council, having accepted the suggestions of the board, orders had been given to their solicitors to lay the necessary papers before counsel, with instructions to prepare the requisite provisional order.

**ATHY.**—At a meeting of the Commissioners, the question of the removal of the fish-market was considered, owing to the alleged nuisance it created. At a former meeting it was unanimously resolved that the nuisance should no longer be tolerated. Some members at the present meeting considered it was an arbitrary act, and contrary to public justice, to abruptly do away with ancient usage. Finally, a month's time was agreed to for the further consideration of the subject, in view of abating the nuisance.

**RATHDOWN UNION.**—In the matter of the workhouse drainage falling on the Loughlinstown Commons, a letter was read at Wednesday's meeting from the Local Government Board, stating that they could not furnish plans in such cases, advising the guardians to engage a competent engineer, and to again take the subject into serious consideration, boards of guardians now possessing great powers under the Sanitary Act to deal with sewerage questions. The chairman said he had obtained the opinion of Professor Cameron that perfect deodorisation might be carried out within the workhouse by a tank and syphon, which would cost but about £50, while the contemplated drainage to the sea would cost £700. Mr. Betham and other guardians spoke in favour of the internal deodorisation and utilisation system. It was resolved to request Professor Cameron to attend the board in the matter on the next day of meeting.

**FILTRATION OF AIR.**—In House of Commons Lord H. Lennox, in answer to Mr. Cawley, said the experiments made by Dr. Percy in the filtration of the air introduced into the House through cotton wool had been attended with great success. Of course there was no objection to applying this system of filtration to the House if it was thought necessary; but at present the air entering the House was filtered through the finest cambric, with almost the same effect as passing it through cotton wool. The cost of adopting the system for the two Houses would be a first outlay of about £200, and an annual outlay of between £50 and £100 for labour and material.

**LEAVING EMPLOYMENT WITHOUT NOTICE.**—At the Dundalk petty sessions last week, Mr. Thomas Clarke, builder and contractor, summoned two carpenters named William Hoey and John Cassidy, for leaving his employment without the usual notice. The first-named was not satisfied with committing an illegal act himself, but he went into Mr. Clarke's workshop and induced Cassidy to leave the employment, telling Mr. Clarke that he would be sorry if he put the society (the Amalga-

mated Carpenters and Joiners) against him. The pros and cons of the affair having been gone into, and the battle amongst the legal gentlemen having terminated, the magistrates said they had come to the conclusion that the whole thing had originated from a personal dispute, though Hoey had threatened Mr. Clarke with the consequences of putting the society against him. If it was not a personal matter they would deal with the case more severely. The wages of both men should be forfeited, and Hoey fined £1 and pay the costs incurred.

**ACCIDENT AT A QUARRY.**—On Friday week last (says the local *Telegraph*) the granite quarry at Goraghowood, so energetically worked by Messrs. Robinson and Son, of Belfast, was the scene of an alarming accident, which resulted in serious injury to three of the men employed there. Preparations had been made for blasting, the usual precautions had been taken, and the men only waited the departure of the half-past eleven train from the station to ignite the fuse. The train moved off, the alarm signal was blown, the match was lit, and the men retired to a convenient shelter, but no explosion followed. They waited for a considerable time, and then cautiously approached the spot, when it was found on examination that the fuse was cut. It was then necessary to extract the charge, and this, after carefully drenching the place with water, they proceeded to do. It was dangerous work, but they had done it before; and, in spite of two or three warnings to desist, they endeavoured to clear out the hole. They had worked at it for a length of time, when some of the men engaged in another part of the quarry saw smoke arise and at once gave the alarm; but it came too late. Before the men could stir, a loud explosion shook the rock beneath them, and two of them were thrown a considerable distance, falling about ten feet; the other, the eldest of the party, saved himself by clutching a rope fortunately hanging near him. F. Williamson received injury to both eyes; James M'Dowell was also injured in both eyes; and Robert Thompson M'Dowell, son of the former, sustained a lacerated wound of right side of forehead, a lacerated wound of the palm of the right hand, and injury to one of his eyes of such a serious nature as to make it probable that the sight is lost. The injured men were as speedily as possible conveyed to the Newry Fever Hospital.

## TO CORRESPONDENTS.

**ARCHITECT (Belfast).**—The matter would doubtless be interesting, locally at least.

**CLERK OF WORKS (London).**—Yes, there are several and ample facilities in the places mentioned.

**J. W. (Glasgow).**—Dublin methods in house carpentry and joinery differ much from the Scotch system, and even from the system practised in the north of England. Neither is Dublin or London practice identical, and the operative coming here for the first time would experience a little difficulty—a difficulty, however, which he would soon overcome.

**THE O'CONNELL MONUMENT.**—In reply to enquirers as to the exact state of forwardness of the work of the O'Connell Monument, we can only say that we are positively informed by a correspondent in London, that a considerable time yet is likely to elapse before the completion of the work—judging by present appearances in the studio of the artists entrusted to finish Mr. Foley's work.

**LIFFIANA.**—The state of the Liffey last week in smell and appearance was disgraceful. The streets, too, were in a most filthy condition in districts north and south of the river, and still the Corporation are not ashamed.

**ARCHITECTURAL UNION.**—The subject is treated elsewhere, and the profession and the country are likely to hear more about it on both sides of the channel.

**CHRIST CHURCH CATHEDRAL "RESTORATION."**—The work is proceeding. The connecting bridge across Michael's-hill, between the Church and the Synod Hall, is being constructed.

**EPPS'S COCOA.**—GRATEFUL AND COMFORTING.—The agreeable character of this preparation has rendered it a general favourite. Made simply with boiling water or milk. Each packet is labelled JAMES EPPS & Co., Homoeopathic Chemists, 48, Threadneedle-street, and 170, Piccadilly. Works for Dietetic Preparations, Euston-road and Camden Town, London.

## NOTICE.

*It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.*

*We shall be glad to receive from any of our readers notes of works in contemplation or in progress.*

*Correspondents should send their names and addresses, not necessarily for publication.*

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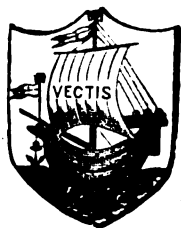
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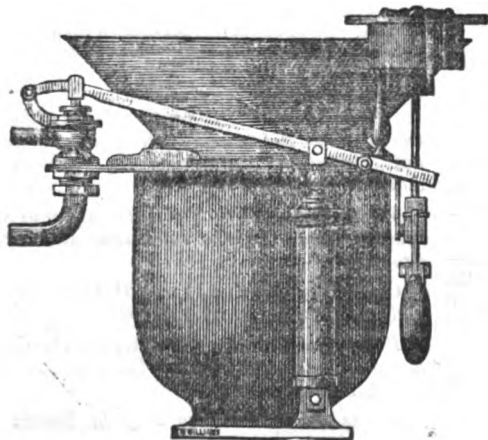
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# The Irish Builder.

VOL. XVII.—No. 372.

*The Late Mr. E. Welby Pugin, Architect.*



It is with sincere feelings of regret that we record the death of the distinguished son of a distinguished father, and grandson of a distinguished grandsire. At the comparatively youthful age of forty-one, Mr. Pugin has passed away from us, which was exactly the same age at which his eminent father died twenty-three years since. The cause of his death is stated to be syncope of the heart, but, though ailing for some days previously, had been so far recovered that he had been out on the day of his death.

The younger Pugin has never had full justice rendered to his abilities, which, viewing all the circumstances of his life and surroundings, were of a remarkable kind. He was of an impulsive temperament, hopeful, active, and generous, and there are many living who, deeply indebted for kindly aid, have ill-repaid him in his lifetime, though they would now feign a sorrow which they can scarcely feel, save it be under the pangs of remorse.

The writer of these lines was acquainted with the deceased architect for some years, and on different occasions had opportunities afforded to him of knowing the obstacles that beset the youthful architect's path, and of efforts made to work him injury in his profession by men of his own order. In his personal conflicts with his professional brethren, we do not say that Mr. Pugin was always in the right, and we have taken occasion to say this; but we do know that though he rushed into print betimes without judgment, he wrote as he felt at the time, and smarting under unmerited taunts. Some months ago, when a certain section in the Royal Institute of British Architects moved his expulsion from that body on the ground of matters which it is unnecessary now to dilate upon, we expressed an opinion that the resolution come to was uncharitable and uncalled for, and we have since seen no reason for altering our opinion. Over the fresh grave of our dead architect we will not rake up the smouldering embers of jealousies and strifes that would be better hidden from sight; but we do hope that those among his brethren and those outside them who have used the Press, under the veil of anonymity, to stab the character and reputation of Edward Welby Pugin, will, as far as lies in their power, undo the work that they have mischievously done. How many architects are there in our midst who at the age of forty-one can show such an amount of work accomplished?

In 1852, at the death of his father, the parent of the Gothic Revival, the younger Pugin was only seventeen years of age, but, having been educated and trained under his father, he was able to undertake and carry out his unfinished work with credit, and carve out a large practice of his own. Between 1852 and 1862 he worked hard, early and late, and his rise was rapid. Both in part-

nership with his brother-in-law and others, as well as single-handed, Mr. Pugin executed a vast amount of work of an ecclesiastical and domestic kind. Some of the cathedrals and churches which he designed years ago for the Roman Catholic community are still in process of completion. Our contemporary, the *Builder*, of Saturday last, furnishes a long list of his ecclesiastical buildings, and those of a domestic character, but even these lists could in both cases be greatly extended. His cathedrals, churches, and schools were chiefly for the Roman Catholic communion, and they extend over the three kingdoms.

Mr. Pugin earned a large amount of money during the first ten or fifteen years of his professional practice, but he spent it lavishly. His Granville Hotel speculation, near Ramsgate, was rather a disastrous experiment, and perhaps it is not generally known that Mr. Pugin lost not a little in the assistance he gave to the journalistic undertakings of others, which were never prosperous concerns.

About 1868 the deceased architect entered boldly into a controversy concerning the design and details of the Houses of Parliament, claiming the work for his distinguished father, and denying that Sir Charles Barry was the architect. There are some who believe he proved his case, while many more stoutly deny the claims put in, while acknowledging the great assistance rendered by Mr. Pugin's father in matters of detail. Mr. Pugin's father gave evidence of his great ability in the designing and superintendence of the new palace at Westminster. The exact share that the elder Pugin had in the work at Westminster may perhaps never be known, though future controversy may bring fresh matters to light. That he was equal to the work claimed for him by his son, there can be no reasonable doubt. The present writer has, or had, in his possession some letters written by Mr. E. W. Pugin at the time of this fierce Houses of Parliament controversy as to his father's claims, and others in relation to another work which passed out of our deceased architect's hands, and which work is likely some day to give rise to discussion. It would not become us at present to make any statement in exposition of this correspondence, but simply to say that our lately-deceased architect makes out a very clear case in several particulars.

But, enough for the present. Our distinguished architect died at his residence in Victoria-street, Westminster, on the 5th, and was buried at Saint Augustine's Church, Ramsgate, on the 10th. Though not equal to his father in some things, yet he was a worthy son of a worthy sire, a distinguished and able architect, and his few slight foibles may well be washed out in the face of his continual flow of kindness to his deserving fellow-men, and the love he bore to the memory of his father, his art, and his own honourable profession.

## THE LITERATURE OF GOTHIC ARCHITECTURE IN IRELAND.\*

In his chapter on "Dr. Petrie's Mistakes," Mr. Henry O'Neill begins by saying—"Several writers on Irish antiquities have not only maintained the most baseless opinions, but they have also made statements directly at variance with facts; we have

already shown one of the Rev. Dr. Ledwich's errors in this respect. This loose writer not only contradicts the reality, but he even contradicts himself. He wished to represent the Irish people up to the seventeenth century as a nation of savages, and, accordingly, he says they were. Shortly afterwards he wished to show that the Irish people were from an early period of the Christian era the most learned people in Europe, and he proves they were. Yet Ledwich is an authority on Irish antiquities."

We have ourselves shown in preceding papers the line of argument adopted by Ledwich, and how he did not scruple, under the veil of anonymity, to back up his own opinions. It may seem that we were a little too hard upon Ledwich, and that we singled him out from among others for our strictures. We found him reckless in assertion, and accepted as an authority; yet, while acknowledging his scholarly attainments, we could not pass over his many attempts at mystification. We have writers of the Catholic school just as reckless betimes as ever Ledwich was, and as careless and as inconsistent.

Dr. Lanigan, in his "Ecclesiastical History of Ireland," makes statements that require proof, and these proofs are not forthcoming. Of the latter historian Mr. O'Neill writes:—"Dr. Lanigan states that the doorways of the towers face the west; Dalton and some others say they face the east, both assertions being wrong. The latter writer makes some other statements respecting the towers which are egregiously wrong, yet these mis-statements appear in an essay which gained a prize from the Royal Irish Academy, and is printed in one of their volumes. Such are some of the false lights that have misguided tyros; there is not one of them trustworthy."

In traversing Dr. Petrie's statements as to the towers being finished at the top with a conical roof of stone, and of being frequently terminated with a cross formed of a single stone, Mr. O'Neill replies that this is not the case—that some have roofs that are not conical, and very many have no roofs, while others have their upper parts destroyed so that we cannot know in what manner they may have been finished. In these matters we believe that Mr. O'Neill states what is really the case. We are of opinion ourselves that the cross was not an original finial, and in the case of the tower at Swords, County Dublin, which we visited some years ago, it bears all the evidences of a modern addition.

As to Dr. Petrie's Christian theory, Mr. O'Neill remarks:—"That the towers are of Christian origin, is the Doctor's great theory. We have seen how the early Irish Christians delighted in art works. Their illuminations in books, their sculpture on crosses and on ecclesiastical buildings, their works in metal; of these we have examples in Ireland ranging from the sixth to the fourteenth century; and the lost Book of Kildare, another of Ireland's miracles of art, was of the fifth century. We have also seen that Irish artists diffused themselves, and had a powerful influence throughout Europe for many centuries. Dr. Petrie declares that the towers were built during this Irish Art era, 'from the fifth to the thirteenth centuries' when the Irish were producing their miracles of art—when the crosses were being sculptured—when the Book of Kells was being illuminated—when the Devonshire Crosier was being produced—when the Irish revelled in art works; yet, strange fact, the towers

\* See ante.

are singularly plain. In any description of a tower now demolished that we have met with, no mention is made of its having been adorned with sculpture; there is very little sculpture on the existing towers, and no inscription whatever. There are inscriptions on some ancient churches, and on sculptured crosses, and on metal works, but the towers stand before us in solemn silent mystery, not a line is inscribed on them to guide the inquirer. As to sculpture, there is very little indeed: this fact is most remarkable. The Doctor evidently felt it to be so. He felt that if the same Irish who produced all the art works we have mentioned, were the producers of the towers, they would be sure to adorn them with some of their wonderful carvings: thus driven, the Doctor boldly faces the difficulty, and declares that 'on several of them Christian emblems are observable.' Were this the case, and could it be proved that the emblems had been carved when the towers were built, the Doctor's assertion would be established so far as the towers which bore the several emblems are concerned; but this important assertion he leaves to be proved in a second volume now due these thirty years and not yet published."

So writes Mr. Henry O'Neill in 1868; but Dr. Petrie is now for some years in his grave, and there is but small likelihood of the Royal Irish Academy giving the learned antiquary's second volume to the world, supposing the manuscript is in existence. It is not our purpose to follow in detail Mr. O'Neill's criticisms on Dr. Petrie. He certainly proves the learned Doctor in error in several matters; and with considerable force points out the unfitness of the towers for the Christian uses assigned by Dr. Petrie in his Essay.

As to the masonry of the towers, Mr. O'Neill writes:—"Dr. Petrie has not proved that St. Patrick introduced the use of mortar into Ireland; neither has Lanigan proved that the Pagan Irish used mortar; but when we have in the Irish towers buildings of unknown origin, and of no use in Christian practices, but for which we can assign a probable use among the Pagans, and can find that such buildings have been used by Pagans, we have established a strong probability that they are of Pagan origin, and then can fairly deduce that the Irish did not learn the use of mortar from St. Patrick's three stone masons."

Mr. O'Neill considers Dr. Petrie's Prize Essay a failure, and while acknowledging the undoubted learning and research of the Irish antiquary, plainly says that the Doctor's want of success was not owing to his want of fitness or of application, but for want of proof. We agree with Mr. O'Neill that if any man could have succeeded in satisfactorily proving that the Round Towers are of Christian origin, Dr. Petrie would have performed the task; but while admitting this, we do not admit that the supporters of the Pagan theory have as yet proved their case in detail. We are strongly inclined to the opinion that the towers were built in Pagan times; but as to their specific uses, and in relation to their architecture and their exact origin and era, there is much information still required. We do not doubt but this information will be forthcoming, for each year is adding to our stock of knowledge regarding the mystic past, and from neath the bowels of the earth many kinds of corroborative evidences in the regions of nature and

art will be upturned to assist in the satisfactory elucidation of the Round Tower mystery.

In concluding his chapter on "Dr. Petrie's Mistakes," Mr. O'Neill sums up as follows:—"After this failure we cannot think that the Irish Round Towers had their origin in Christian times, and were built for a Christian priesthood's use: we cannot think that the similar towers which Lord Valentia saw in India, and which he was told were of an extreme antiquity, and belonged to a people whose religion was as mysterious as those ancient towers, we cannot believe that those were erected for a Christian priesthood's use. And the similar towers which the Pagan writer Lucian describes as being in his native land before the Pagan temple in Syria, these towers surely were not of Christian origin. They were never raised by Christian hands; neither were the Irish towers. We are convinced they belong to those distant ages when Paganism was dominant, when devotees prayed in high places, that, by getting nearer to the gods, they might be better heard by them. The grey mystery of thousands of years hangs over these strange buildings. Is it not probable that, when the Egyptians of old were erecting the stupendous pyramids, the Irish of old were constructing these slender and graceful towers? Twin-born of time, the eastern structures are gigantic, ungraceful marvels; the western ones, though comparatively small, are incomparably more elegant. Thirty centuries have probably passed away since some of the Irish towers were erected; many more centuries may have elapsed since that form of building was originated. That they were for religious purposes seems beyond a doubt; but they have no use in Christian requirements: they are assuredly Pagan, and it seems equally certain that they can vie in antiquity with the buildings of ancient Egypt, and belong to a creed as old as any that was taught in those sacred structures whose ruins still give a glory to the banks of the Nile."

Mr. O'Neill intends, we believe, to publish a work particularly relating to the origin and uses of the Round Towers, wherein he will broach the secrets he can only whisper now. From what he has already incidentally stated in his work on "The Fine Arts and Civilization of Ancient Ireland," we may fairly guess the theory he proposes further to promulgate and confirm by the aid of further study. He has apparently full faith in his views, and we trust, for his own sake and the general interest in the subject, he will perform satisfactory labour. Whether successful or not, it is likely, should his work be given to the public, it will be worthy of perusal.

Since our last paper was published we have received from the author of "The Druids, Ancient Churches, and Round Towers of Ireland" a copy of his work. This volume is to a large extent a very singular production, and it is saying very little to add that it is both a curious and an interesting one. In Chapter IV. of this work the author (the Rev. Richard Smiddy, of Aghada) propounds the theory that the Round Towers of Ireland were erected and used for Baptisteries. So confident is the author in his belief, that he has not the least misgiving on the subject. His believes his theory touches a chord which was never touched before, and he is also certain that the arguments which

he has adduced demolish all previous theories. He discusses at some length the views of his predecessors, and, after clearing the ground, commences to debate the origin of the name given to these towers in the Irish language. He says:—"The name of the Round Tower in the Irish language may throw some light on its use and origin. In the Irish annals and old chronicles we find the name *cloictheach* and *cloigtheach* applied to the Round Towers and to other structures. *Cloictheach* means 'the house of the bell' or belfry. But the universal popular name of Round Tower in Munster, Connaught, and other Irish-speaking parts of Ireland is *cuilceach* or *cultecheach*. This name is formed from *cuille*, a 'reed,' and *theach*, a 'house'—that is, the reed house or reed-shaped structure. Thus the people have always said, with constant, unerring accuracy, when speaking of these structures, *cuilceach Cluina*, the Round Tower of Cloyne; *cuilceach Colmain*, the Round Tower of Colman (the patron saint); *cuilceach Deaglain*, the Round Tower of Deaglan, of Ardmore; and so on. Some have said that *cuilceach* is a mere corruption of *cloictheach*, the 'bell-house.' It is no such thing. It is the real, true name of the Round Tower in Irish, and is pronounced by the people with unmistakeable accuracy. There is growing in the rivers and bogs of Ireland a large kind of cuile or reed with a conical head, which in form and shape resembles the lines of the Round Tower, and which I am sure was originally taken as the model of it."

... "But what meaning, or mystery, is there in the reed, which it could communicate to the reed house or round tower. The reed is an emblem of St. John the Baptist, and naturally an emblem or indication of the water by which it is produced. The Saviour in the gospel compares St. John to a reed shaken by the wind. 'What went you out in the desert to see? A reed shaken by the wind.' Or, as it is in the Irish, '*Cuilch luasagh leis an ngaoith*?' This points to the Round Towers as being of that class of structures called baptisteries, which in the early ages of Christianity were attached to episcopal churches, and in which adults of both sexes, as well as young persons, were baptised by immersion, and received immediately after the sacrament of confirmation from the hands of the bishop."

The Rev. Mr. Smiddy next quotes an extract from an article of Bergier in his "Encyclopædia of Theology," by which it is advanced that baptisteries were edifices placed altogether outside of churches, and standing at a distance from their outer walls. Another extract follows from the "Penny Cyclopædia" on baptisteries and their position, cited in support of our author's views. The Rev. Mr. Smiddy then proceeds to say—"Are there any features in the Irish Round Towers to correspond with the ancient baptisteries, as described by these extracts?" There are many; and every circumstance connected with them can be easily explained by supposing that they are buildings of this class. In the first place, they are found near the old Episcopal churches, where the bishop was present to administer the sacrament of confirmation, which, in the early ages of Christianity, was always received immediately after baptism. This is the practice in the Eastern or Greek Church to the present day. In the second place, the Round Towers in many instances exhibit the figures and emblems peculiar to the ancient baptisteries."



We find we will have to devote another paper to the discussion of the Round Tower portion of our subject, and for the further exposition of the theory of the Rev. Mr. Smiddy. We fail to see the force of his arguments as far as we have quoted him, unless we agree in supposing everything he supposes. He repeats himself several times without making the matter more clear than what he has stated in the first instance. In our next paper we will quote his novel views further and in a fair manner. We hold certain views in respect to our Round Towers which we hold to be tenable, but we are not so wedded to them as not to be ready and willing to cast them aside were better supported views put before us. None of the Christian theories propounded, respecting the origin and uses of our Round Towers, stand the process of a practical dissection. Some of the Pagan theories too, as regard the uses of the towers, are also weak, but the proofs are strong which trace their erection to a Pagan era. Doubtless, these mystic pillars have been applied to Christian uses, though we are unable to subscribe to the opinion that they were originally built by a Christian people for Irish ecclesiastical purposes.

### THE CORK DISTRICT LUNATIC ASYLUM PLANS.

In reference to these plans, and the differences existing between the architect and engineer, already alluded to in these pages, a report was brought up at the last monthly meeting by the Board Committee. The following letter from the architect deals with the action of the board, and is sufficiently explanatory without the printing of the report:—

GENTLEMEN,—I have to acknowledge receipt of a communication from the House Committee, in which it is stated that a recommendation will be made to the Board that my services as architect to the proposed works should be dispensed with in consequence of some alterations in the plans having been made by me. In justice to my professional character, I feel called upon to vindicate my conduct and action in this matter. In the first place, I may remark that, according to the usual professional practice, before the contract is entered into with the builder the architect is not only at liberty to make any changes he may find necessary in the plans in the interests of his clients, but it is his duty to do so, in order to insure economy and efficiency in the execution of the works, so that the drawings, although signed on behalf of the clients, cannot be looked upon in the light of deeds until endorsed by the contractor. The drawings for the proposed works in question consisted of about forty large sheets, in five of which some alterations have been made. I myself proposed but one, and that a matter of construction, the others being only slight alterations in the size of some minor store buildings, and changes principally in the size and position of doors in main store building. These changes in the first instance were proposed by Dr. Eames himself, and not either devised or suggested by me, and were approved of by the House Committee, new drawings for which (although unnecessary) would have been made had not Dr. Eames called to my office a few days previous to the meeting of the governors of April 2nd, and I told him I could not have any new drawings ready for the Board, but as there was so little to be done to the drawings of the store buildings I could have them ready. He replied that it would be a great matter to have anything prepared for the Board, and I consequently completed the alterations in question on the original drawing, solely for the good of the institution, in order that they might be laid before the Board at once and not put off to the next monthly meeting, as it was considered of importance that the works should be commenced as early in the spring as possible. I had not the slightest intention of doing anything to these drawings until Dr. Eames called. I was greatly surprised on reading the reports of the proceedings of the Governors of April 2nd in the public papers, that Dr. Eames, when I was not present, made a number of statements most injurious to me as a professional man, and stated that a letter of explanation submitted by me was "all incorrect," that my tracings could not be depended on, and implied that I was the cause of the delay in the progress of the works. I now beg emphatically to reiterate every word contained in that letter, and also to state that any tracings pre-

pared by me were perfectly correct. The real cause of the delay arose from the fact that Mr. Edwards, the surveyor employed by the Board to take out the quantities, although appointed early in December, 1874, never asked for any explanation which he stated he required until March, 1875, and then made incorrect reports to the Board which, together with Dr. Eames' statements, have prejudiced the Governors against me, and caused some of them to make use of very strong language most injurious to my professional character. On reconsidering the matter, I feel sure that the Governors will deem it but an act of justice to make reparation for the great injury publicly done to me, as I would much regret, after being connected with the institution for twenty-eight years, that I should be compelled to take steps in any way of a hostile nature,—I am, gentlemen, yours obediently,  
WM. ATKINS, Architect, F.R.I.A.I.

We see by the report of the proceedings that it was proposed and carried, "that, after considering Mr. Atkins' letter, they considered that no person had ever been permanent architect of the board, and that Mr. Atkins' claim to that effect was quite erroneous and unfounded in fact." In the report of the House Committee it is said that, though the board would be "warranted in wholly repudiating the plans, we suggest that such a course should not be adopted, but that Mr. Atkins should be paid for those plans at the rate of 2½ per cent. on the approximate amount of the expenditure, or on the amount of the tenders that may be accepted for the work; and this suggestion we make from a conviction that your board desire to deal as fairly with Mr. Atkins as you consistently can with your duty to the institution and to the rate-payers."

The annexed correspondence is a reply to the statements made in the published report of the House Committee, and in answer to the query of Dr. Eames:—

SIR,—I have seen in the report of the House Committee of the above institution some very strong remarks on a short letter that I had previously written to them, which remarks had no doubt the effect of prejudicing the minds of the governors present against me. They are—that the letter "is unwise, incorrect; that they are coerced to express an opinion about it in strong terms. That it contains in their opinion expressions tantamount to an attempt at usurping the powers, and setting the authority of the governors at defiance." As the letter is not long I give below the entire text of it, and I am quite confident that the public will be much surprised how it merited in any way all these strong expressions. As to the "wisdom" of it that is a matter for myself, but I distinctly say that the letter is perfectly correct. I mentioned in it that I am architect to the proposed new works, which cannot be denied by the committee, and from which position I have never been removed. A resolution was finally proposed and carried, "That my claim to be permanent architect to the board was erroneous and unfounded." Where have I made any such claim? Surely it is not right for a public body to put forward statements as having been made by me which I never even hinted at. As far as the resolution quoted goes, "that in case of any works being required I should be applied to on the subject," it bears but the one interpretation, which has been heretofore given to it, by the governors of the asylum, as it has been strictly acted upon with regard to all architectural works for sixteen years, and never controverted until Mr. Edwards commenced making his reports, the correctness of which I deny. With regard to the statement in the report, "that I was especially cautioned by the committee against making any alterations whatever in the plans," I most distinctly assert that I cannot call to mind anything of the kind having been said to me, the committee sat for an hour after I left; the subject might have been there brought forward, but I know that after that I told Dr. Eames in my office that the only way I could have anything ready for the board was to complete the alterations of these plans, and he did not even suggest to me not to do it, or call my attention to any direction as having been given by the committee on the subject. As to the new plans referred to in my letters, I most clearly state that I was directed by the House Committee to complete them as quickly as possible, and some are at present with the other plans at the asylum. Dr. Eames has, I perceive, the same thing as reiterated his statement that all my letter was incorrect. The truth of assertions thus directly opposed to each other can only be ascertained by proof from documents and otherwise; these when necessary I can produce.  
WM. ATKINS.

SIR,—In reply to your communication of the 10th inst., you will please inform the committee that it is premature to furnish an account for professional services, in connection with the proposed new works, of which I am architect, until progress is made in the buildings. There is a balance due to me on account of the extension of the infirmary, a statement of which I shall forward. I have the new plans ready, embodying the other changes, ordered by the committee.  
WM. ATKINS.

J. A. Eames, Esq., M.D., R.M.S.

We have taken means to inform ourselves of the nature of the alterations alleged to have been made by Mr. Atkins in the plans, concerning which so much angry feeling has been aroused. While agreeing that the alterations should not have been made, they appear at the same time to be of a very trifling character, confined to five plans out of forty, one alone in the matter of construction proposed by the architect, and the rest, it appears, were proposed by Dr. Eames. It also appears that these alterations were sanctioned at first by the House Committee, and were put upon the drawings merely to save a month's time. Mr. Edwards, the engineer, was the surveyor employed to take out the quantities, and three months had elapsed without anything being done in the matter. If we should state anything to the prejudice of Mr. Edwards in our remarks which can be explained away, we shall be glad to hear of it and do justice to him. We cannot, at the same time, help thinking that Mr. Atkins has been harshly treated, after his twenty-eight years' service; nor can we get over the feeling that there is some professional jealousy at work. We would like to know if it is true that the engineer reported against the architect's work, and got it transferred to himself; and if any plan for the entire sewerage of the building made by the architect was appropriated by the engineer; or if in any other cases work was taken out of the architect's hands by incorrect reports of the officials or other members of the board? These are questions which we would like to see answered in a satisfactory manner before we deal further with this case.

### A NEW TOWN HALL FOR PAISLEY.

THE premium plans for the George A. Clark Town Hall have been selected. Mr. Clark died in America last year, and by his will he bequeathed the sum of £20,000 for the erection of the hall. The committee appointed agreed to have competition plans, and offered premiums of £100, £50, and £25 for the three best. They awarded the first prize to the plan with the motto "Fortuna Sequatur"; the second to the plan with the motto "Experientia;" and the third to the plan with the motto "The Moon." On the envelopes bearing relative mottoes being subsequently opened, it was found that the first plan was by Messrs. Rennison and Scott, Paisley, and the third by Mr. Henry Higgins, Dumbarton-road, Glasgow.

The plan of Messrs. Rennison and Scott is the one likely to be adopted for the building. The structure, as designed by Mr. Rennison and his partner, is Early French Gothic in style, and in all its departments appears to be well arranged. The larger or public hall of the building is to be seated for 1,290 persons, the back portion under the gallery being left unseated, to be used as a promenade. It was stated in the instructions issued to the architects that the building should not cost more than £18,000, with 10 per cent. added, but this estimate is likely to be far exceeded. The trustees of Mr. Clark have already expended about £1,000 on the site. The work of erection will not be commenced before June next year, the committee being prevented from acquiring one of the properties of a life renter with whom they are unable to make terms. The Town Council go to Parliament next session for a bill affecting the town, in which bill they will get a clause inserted seeking powers to remove the present obstruction.

## THE PROPOSED NEW BRIDGE OVER THE LIFFEY.

THE following memorial was read and adopted at a meeting of influential citizens, held at the Chamber of Commerce, on the 5th inst. The subject matter was anticipated and discussed in our last issue, and on reference to our back volumes further particulars will be found:—

The memorial of the undersigned inhabitants of the city of Dublin to the Port and Docks Board, sheweth, that in the opinion of the memorialists, a new bridge over the River Liffey, to the east of Carlisle Bridge, is urgently required, for the following reasons:—A very large portion of the inhabitants of the city and suburbs on both sides the river now reside to the east of Carlisle Bridge, and their convenience requires that a new bridge should be erected to the eastward of that bridge. The trade of the port has increased very materially in the last twenty-five years, and this, together with the improvements made by your board on both sides of the river, to meet the requirements of that increased trade, has removed the business of the port further to eastward, and has had the effect of largely increasing the traffic passing from one side of the river to the other. Various other causes have tended to produce the same result—for example, the improvement in the Custom House docks and warehouses on the north side, the erection of several large warehouses and manufactories on both sides of the river, and the removal of the goods terminus of the Midland Great Western Railway from the Broadstone to the North Wall. The same result will be further promoted by the extensions which are now in course of construction, and will be shortly completed by the Great Southern and Western, the Northern, and the London and North Western Railway Companies. The trade in grain, coal, timber, and other articles is greatly interfered with and inconvenienced by being obliged to go round by Carlisle Bridge, and, at the same time, the traffic in those heavy commodities has the effect of impeding the other important traffic which passes over that bridge. In the year 1860, at the instance of the then existing Ballast Board, Colonel Lake, Commissioner of Metropolitan Police, directed an enumeration to be made of the number of vehicles passing over Carlisle Bridge between the hours of 9 a.m. and 7 p.m., the result of which was as follows:—On the 7th of March, 9,779 vehicles passed over within ten hours; on the 8th, 10,426; on the 9th, 10,419; on the 10th, 10,869, showing a daily average of 10,374 vehicles. Of this, the portion passing over the bridge from the quays, both eastward and westward of it, formed an average of one-fourth. Besides this, the number of vehicles passing along the quays, across the ends of the bridge, without passing over it, was about one-sixth of the above total, or a daily average of fully 17,000. A similar return was taken at about the same period of the traffic over London Bridge, one of the greatest thoroughfares in Europe, which was found to be very little in excess of that passing over Carlisle Bridge. Since that time the traffic here has immensely increased; this alone would be a sufficient reason for building another bridge. But the great delay, inconvenience, and danger to carriages and foot passengers crossing Carlisle Bridge arises not so much from the extent of the traffic as from the fact that the bridge is approached by three streets on the north side, and by four streets on the south side. It is only necessary to observe the progress of a dray coming up Burgh-quay, crossing the bridge, and going down Eden-quay, to see that it must twice cross and interrupt the stream of traffic from Sackville-street to Westmoreland-street. The same delay and interruption is occasioned by carriages passing from D'Olier-street to Sackville-street or Eden-quay. The widening of Carlisle Bridge would not in the least obviate the inconvenience arising from the cross traffic and the numerous approaches to the bridge. In fact, if Carlisle Bridge were made extremely wide, while the cross traffic continued as at present, the difficulty and danger to passengers would be increased. Your memorialists heartily concur as to the importance of improving and widening Carlisle Bridge; but they submit that the improvement of Carlisle Bridge should be considered in connection with the providing of a new bridge to the eastward of it, and that the new bridge is a necessary supplement to the improvement of Carlisle Bridge. Your memorialists have abstained from going into particulars as to the exact position of the bridge, or the manner of its construction, but if they might venture an opinion in this respect, they would take leave to suggest that a bridge terminating at Beresford-place on the one side, and George's-street on the other, with an opening to admit vessels, would best meet the general requirements; or, if practicable, a

swivel bridge (somewhat similar to that constructed at Leith) from Commons-street to Creighton-street. Your memorialists beg to apply to you as the parties intrusted by the Legislature with the care of the bridges and quay wall, as well as the port generally, to give your sanction to the construction of another bridge to the east of Carlisle Bridge, and they respectfully ask you, if you have not at present parliamentary powers sufficient to enable you to carry out such a work, to apply to Parliament for the necessary powers to do so.

A second memorial, nearly similar in terms, was prepared for presentation to the Corporation. We desire to add but little to our former remarks respecting the advisability of erecting a new bridge. The question has been for some years before the public, but, like many other similar questions, it has been a "stand still movement." Whether the present memorials will have the effect of hastening the accomplishment of the long-needed improvement, is more than we can foretell. With Carlisle Bridge enlarged and improved, and a new bridge erected over the Liffey at Beresford-place, the traffic of the city would certainly be greatly facilitated. A new bridge is one of the wants of our time; and no matter how long delayed, it will eventually have to be erected.

## MICHELANGELO.\*

(Continued from page 145.)

WHEN Michelangelo was called to Rome by the Pope in 1504, the first task laid upon him was the preparation of designs for the mausoleum, of which mention was made in my last lecture.

The personal vanity of the Pope dictated that his monument should be no ordinary structure, and he resolved that a place in the old Basilica should be prepared for its reception. It soon appeared, however, that the ideas of the Pope were on too vast a scale to be consistent with this arrangement, for although the whole size of the church was large, the dimensions of its parts were moderate, while the scale of the mausoleum was to be colossal.

From the discussions which arose from this circumstance, Julius conceived the notion of replacing the ancient Basilica by a new structure, as had indeed been vaguely contemplated by his predecessor, Nicholas.

It may now be interesting to inquire what the mausoleum was to be like, which was the cause of so great a conception, and led to so much trouble and wasted energy of the artist. We may therefore refer for a moment to Vasari's description of the design.

It was, he says, to be isolated, having a passage round it, for greater magnificence of effect. The dimensions were to be 18 braccia (36 ft.) on two sides, and 12 braccia (24 ft.) on the other two sides, the proportions being therefore a square and a-half on plan. A range of niches occupied the sides, and the cornice was to be supported by statues, partly clothed, after the Grecian manner of Caryatides. To each of these figures a captive was bound, intended to signify the provinces subjugated by Pope Julius, and brought by him into the obedience of the Apostolic Church. There were to be other statues, also bound, representing the liberal arts, and including painting, sculpture, and architecture—all paralysed and hampered by the death of the Pope.

Above the cornice, there were to be eight colossal statues of prophets, apostles, and virtues, including those of Moses and St. Paul. Forty statues in all were to have adorned the monument, which was to have been further enriched by bas-reliefs of marble and bronze.

The substructure was to be 18 ft. in height, and this was to be surmounted by a light marble baldacchino, beneath which, two angels guarded the sarcophagus of Julius, one in an attitude of grief, and the other pointing to heaven.

Such, we are told, was the design of this

\* Professor E. M. Barry's third lecture at Royal Academy, March 8th.

ambitious work. The description is, I believe, in accordance with a drawing of Michelangelo, which I have not seen; but which is said to be preserved, with others of his sketches, in the Florentine Gallery. Michelangelo set to work on it with zeal, and repaired to Carrara to seek the marble, leaving the Pope to meditate on his plans for the new church.

The Pope first employed Giuliano San Gallo to prepare designs for the latter, but, for some reason, he was almost immediately superseded by Bramante, who deserves to be considered the first architect of St. Peter's. The new church was to cover the site of the ancient Basilica, but was to be greater in extent. The length was to be increased from 435 ft. to 620 ft., and the breadth from 248 ft. to 380 ft.

The nave was to be vaulted over, with transverse vaultings across the aisles, to serve as abutments, after the design of the fragment known as the Temple of Peace. Screens of columns formed aisles in the apsidal terminations of the three upper arms of the cross; a novel feature, and one which seems to contain promise of richness, and picturesqueness of effect.

The great order of the nave was Corinthian, and was 101 ft. high. Professor Cockerell suggests that the contrast of an order of such colossal dimensions, with one much smaller, as designed by Bramante for the exterior, was intended to produce that effect of surprise, which was a not uncommon artifice in Mediæval composition.

But the chief glory of Bramante's design was to be the dome, covering and crowning all, with its cross uplifted to heaven. This was, no doubt, suggested by the Pantheon, which had ever excited the admiration of architects. The Pantheon was low in section, being only one diameter high, and it rested on a continuous abutment. To place the dome of the Pantheon in the air, was, therefore, an untried attempt, and on this Bramante resolved.

Bramante's design for the dome was marked by a grand simplicity, with its unbroken peristyle of columns, a feature which Wren afterwards adopted at St. Paul's. Michelangelo was much struck by its originality, and had a high admiration for Bramante's architectural skill. Quarrels, indeed, arose between the two men, with bitter jealousies; but, notwithstanding these, Michelangelo bore a willing tribute to his rival's ability, and is even reported to have said, "No doubt can exist that Bramante is the greatest architect who has existed from ancient to modern times, and whoever has departed from his model has departed from the truth."

The construction of a lofty dome was not, however, an original inspiration of Bramante, for as long back as 1298 Arnolfo di Cambio da Colli had commenced a similar design, which he did not live to finish, in Florence.

The dome of the cathedral at Florence is almost identical in diameter with that of St. Peter's, each being about 134 ft. or 135 ft., the diameter of the dome of the Pantheon being 142 ft.

After Arnolfo's commencement of the Florentine cathedral, upwards of a century elapsed before a man was found to carry out his conception, and crown his work with the dome we all know so well. That man was Brunelleschi, who, in 1407, produced his plan in the famous competition for this work. Michelangelo looked on this design with admiration, and, in the days of his greatest influence in Florence, exerted himself to prevent the designs of Brunelleschi for the completion of the building from being departed from.

The novelty of Brunelleschi's proposal was the suggestion that the dome should be double, connected together with ribs, and that both outer and inner domes should be pointed in sections. We shall see hereafter how much Michelangelo was influenced by this design.

Bramante's drawings are but partially preserved, and we do not know how he proposed

to deal with the constructional details of his dome. We do know, however, that his character was hasty and impetuous, even to rashness; and an inspection of his plan is enough to show us that the strength of his four great piers is altogether insufficient for such a dome as he intended to erect.

Bramante was in so great a hurry, however, to realise his project, and was so much pressed by his impetuous patron, that the piers were carried up with undue haste, and showed signs of decay, and weakness, before his death, which occurred in 1514.

On the death of Bramante, his mantle, as architect of St. Peter's, fell on no less a man than Raffaele. This famous painter had come to Rome in 1508, and Bramante had at once secured for him the favour and patronage of the Pope. He was at once employed on his immortal works in the Vatican, and his simple, graceful ways earned the affection of Julius.

Michelangelo was now engaged on the Sistine Chapel, and it was scarcely possible for the two great artists to avoid rivalry. Their followers, at any rate, were not discreet enough to do so, and, as often happens, showed more party spirit than their masters.

It has been noticed that even when Michelangelo had completed one half of the ceiling of the Sistine Chapel, Bramante endeavoured to transfer the remainder to Raffaele, and there can be no doubt that he was anxious to exalt his favourite, at all hazard.

It was natural, therefore, that Julius, who trusted in Bramante, and also was much attached to Raffaele, should call the latter to his aid at St. Peter's, when death had carried off his friend and master. Raffaele must, however, have felt a difficulty, as regarded the more technical duties of his office as architect, for we find associated with him, and presumably at his request, Giuliano San Gallo, and Fra Giocondo di Verona, to act as practical advisers.

(To be continued.)

#### MAIN DRAINAGE AND LIFFEY PURIFICATION.

On these subjects, Mr. Hassard, C.E., whose name is known in connection, states a few matters not generally known—facts which have been mystified heretofore. As to the drainage scheme, Mr. Hassard writes:—

"In August of last year, the Corporation—being apparently in despair, and unable to find a contractor to carry out their proposed works for an amount within the authorised expenditure—unanimously resolved to refer the whole question to three independent Irish engineers to assist them in their difficulty, and advise them in relation to it, and did me the honour of selecting me as one of them; from which it may be inferred that its members had some reliance on my professional judgment. Independently, however, of other considerations, with which it is not necessary to trouble you, my engagements did not allow me to undertake the investigation, and another engineer was appointed in my stead. The report followed in due course, but the Corporation have not thought fit to adopt its recommendations.

The subject being then pretty well exhausted, I and my friend, Mr. T. H. Falkiner, C.E., who is joined with me in the matter, and who has given much time to its consideration, addressed a tender to the Corporation, offering, as contractors, to construct a system of sewers and works for the purification of the Liffey, including everything excepting the purchase of the necessary property, for the sum of £340,000. The plans, estimates, and mode of dealing with the question to be subject to the opinion of Sir John Hawkshaw, on the understanding, that if approved of by that gentleman, we should be given the contract for carrying out the works at the above-named sum; or, if the Corporation preferred to seek for independent tenders, that we should be paid, as professional compensation, such sum as might mutually be agreed upon; or, in the event of disagreement, be determined by arbitration.

To this communication—which, in the event of Sir John Hawkshaw having approved of the proposed mode of dealing with the subject, would have relieved the Corporation of much difficulty—we did not receive any reply; and this appeared the more

strange, as I had so recently been selected as an engineer competent to advise in the matter.

We are of opinion that by a mode of dealing with the question, differing from what has been proposed, the purification of the river can be effected in a most substantial and permanent manner for a sum not much exceeding that which the Corporation are now authorised to expend.

Some years since a project for the main drainage of the city, in connection with a concession of the sewage to Messrs. Barrington and Jeffers, somewhat similar to that proposed by the Corporation, was submitted by Mr. Hemans, Mr. Falkiner, and myself. Further investigation has, however, confirmed Mr. Falkiner and me in the belief that the matter can be otherwise dealt with, and at less cost."

A complete system of main drainage for Dublin for the sum of £340,000 would not at all answer the lofty notions of the speculative minds in our municipal council. If Sir John Hawkshaw had ventured an opinion that the scheme of the two consulting engineers was the fittest and the most economical, it is probable his opinion would be ventilated far and wide. Delays, however, are dangerous, according to the old proverb. The price of materials went up, and the cost of the proposed drainage mounted in double-quick time. A staff was appointed with nothing to do, and they were paid well for doing it; and after money and time had been wasted, there came the collapse we now witness—plans are changed, modified, and changed again, amended, and re-amended, materials are changed, and governments are changed; but the spirit of jobbery still survives, despite the wreck of schemes, and the death of speculators.

#### LARGE AND SMALL FARMS.

##### NINTH ARTICLE.

IN all countries large farming has been found to be most remunerative, especially as the production in large quantities, and the application of machinery tends both to increase and to cheapen the manufacture of any article. Again, in all thickly-populated countries necessity requires more the co-operation of many in those large undertakings which single individuals would not or could not venture. In all countries the tendency of individuals who embark in large farms has been to change the land from cultivation into mere grazing for cattle, although, by constantly stirring up the ground, and a constant supply of manure, more can be extracted from the soil, and more food can be obtained both for individuals and house-feeding cattle and produce more food for the people and manure to improve the land. These reasons evidently point to the advantage of large companies being employed in the cultivation of the earth where the failure would be diffused among so many proprietors as scarcely to be felt by each separately. It is impossible for small farmers to purchase the machinery requisite, and to leave it a long time to be neglected, probably rotting, and certainly unremunerative.

It is true that often machinery is and can be hired, but this must increase the price to the consumers of the produce, as interest has to be given to the capitalists who own the machinery; this can only be the case of locomotive machinery, but there may be some worked by other motive power. The loss by the failure of a company cannot throw more persons out of employment than that occasioned by a single individual, and the speculation is more likely to be recommenced again when there are many interested in the concern. The rent of the land is but a trifle, the costs of producing and bringing the crop to the consumers, but in old countries, thickly inhabited, where labour and money can be obtained easily, plenty of large companies will be more remunerated than embarking in distant lands where workmen are few, and the costs of introducing them and machinery would be so great as to render such a speculation unprofitable. There is plenty of capital in these countries; plenty of labour can be easily obtained, and even if

the already cultivated land could not be more easily obtained, the waste land can be brought into a more valuable state than by the wild views of those who ask the Government either to purchase and to reclaim and sell them to so-called peasant proprietors,—often paupers who have neither the means nor the knowledge to cultivate remuneratively, for the benefit of the nation; these sink into discontented and disloyal subjects who are led by the visionary views of knavish and designing demagogues.

Trading companies are the result of the co-operation of large and small companies, and are the depositaries of the savings of the provident, both rich and poor. The depositors generally are faithful and loyal subjects, who, having acquired habits of industry and frugality, continue in the same honest course through life.

There are two bills now before Parliament respecting the waste and improvable lands of Ireland; both suggest that the Government should embark in the purchase, and to improve first, and then to sell the latter as well, and let the purchasers of small lots to improve them. These visionary views will do more to retard progress and to perpetrate poverty, ignorance, and discontent. They are the designs of those who believe that an ignorant mob can be as easily led as an herd of oxen, and that the sense with which men are endowed should not be enlightened by science. The object of a state should be to educate its subjects, and to encourage those who will give employment to an educated and contented people, and thus by preventing emigration to increase the population at home. \*

#### GLASGOW.

IN his evidence before a Select Committee of the House of Commons on the Crosshill and Glasgow Extension Bills, Dr. J. B. Russell, medical officer of health for Glasgow, deposed that since 1855 the average death-rate in Glasgow had been 80 per 1,000, the lowest 27½, and the highest 84. In 1861, it was as low as 27½, and in 1869 it was 84. The only town that exceeds Glasgow is Greenock, the average of which was 81. Edinburgh, Dundee, and Paisley were all lower. During the same period, the average death-rate in Liverpool was 83, Manchester 80, Leeds 28, Sheffield 27, London 24, and Bristol 22½. The three features of mortality in Glasgow were the large proportion of pulmonary diseases, the fatality of infectious diseases, and the high rate of infant mortality; and amongst the unsanitary circumstances with which the authorities had to contend were, first, the density of the population. There were 89 persons to the acre in Glasgow, whilst in Edinburgh there were but 50 to the acre. There were in Glasgow an unusual proportion of small houses; 82 per cent. of the inhabited houses had only 1 apartment, 48 per cent. only 2, and there were only 6 per cent. of the houses above 4 apartments. Even of the 1-apartment houses 14 per cent. had lodgers in them. Seventy-eight per cent. of the families live in two-roomed houses, and only 58 per cent. in Edinburgh. In the larger houses there lived but 6 per cent. in Glasgow, whilst in Edinburgh there were 22. The effect of the density of the population in Glasgow was shown in two instances, one in which there were 70 persons to the acre, and the death-rate was 21, and another in which there were 387 to the acre, and the death-rate was 41. In the first instance only 12 per cent. of the houses were of one apartment, and 21 per cent. above four apartments. In the second instance, 46 per cent. of the houses were of one apartment. He had in more than one instance found it impossible by an arbitrary boundary to limit an epidemic to a small district outside that boundary. He constantly found that the want of sanitary arrangements in the outskirts was sending disease into the limits of the city.

## THE LABOUR LAWS.

On Thursday last, the Home Secretary, Mr. Cross, brought in his Bill to amend the laws of labour. By this measure malicious injury to property is to be dealt with by the criminal law; but all other matters between masters and servants, or in other words employers and their workmen, are to be treated by a civil process. Freedom of contract between masters and servants and fellow workmen is to be established; cases of picketing may be tried by juries, and trade combinations are not to be considered as conspiracies. The Home Secretary gave a pretty fair review of the ancient laws as regarded labour, and the Acts on the subject from the time of Edward III. down to our own days. He acknowledged that many of our past enactments pressed unequally upon workmen and servants; and cases were made criminal when they should be merely civil. The Act of 1867 was now about to expire, and to remedy the defects of this Act, and to lay down a clearer mode of procedure, was the object sought in the present Bill. The new measure includes two Acts, separately dealing with criminal and civil cases. In the Criminal Act, Mr. Cross proposes to insert a clause to the effect—that an agreement or combination of two or more persons to do or procure to be done, an act in contemplation or furtherance of trade disputes between employers and workmen, shall not be punished as a conspiracy if such act as aforesaid, when committed by one person, would be punishable as a crime.

In the words of Mr. Cross, in respect to the tribunals, the Government did not think the county courts had the full and ample powers which they ought to have to deal with such cases, and they therefore proposed to supplement these powers; so that the judges could not only give damages, but they might adjust and set off all claims which might exist between master and servant, and they should also have the power to rescind a contract. Another question that was put was whether they could not exercise the same power as the Court of Chancery in reference to contracts for specific performance; but the answer was that the Court of Chancery never did enforce such contracts. But there was one way in which a good many of those cases could be met to the satisfaction of both parties. In many cases when a servant was brought up for breach of contract, and damages were assessed against him, it would be much better if he would go back to his work. It was therefore proposed to give the court power to tell him so, and make an order accordingly in the event of his entering into an agreement to do so. Another question that was very much considered was, What other tribunal can you go to? The county court was rather expensive, as well as dilatory; and therefore the Government suggested that, in small cases, where the damages claimed were under £10, they should go to the stipendiary magistrate, or in the event of there not being any, to the petty sessions, and that the magistrate and the petty sessions respectively should have the same power as the county courts. In regard to imprisonment, the commissioners recommended that for small sums it should be three months, and for large sums six months. This, the Government considered an inconsistency, and its effect would be to put the workmen in a worse position, because just now they were only liable to imprisonment for a few days for a small sum, while if the recommendation were adopted they would be liable to three months. The Government consequently did not adopt it. They said: If this matter is to be treated civilly, treat it civilly; and therefore they proposed that when damages were assessed they should become debts, and recoverable like any other debts. In this measure they had given practical effect to that conclusion; and in doing so they believed they had proceeded logically in the recommendations of the commissioners. That being so, having defined what appeared to be crimes, when they came

to civil offences they treated them civilly, and therefore contracts of hiring and serving were as free as contracts of any other kind. But now they came to the other part of the question; and the Government were of opinion that there should be as much freedom among the fellow-workmen themselves as there was between the workman and master. There was to be no infringement on the workman's liberty as regarded his master; and in the same way there was to be no coercion on his free will by his fellow-workman.

In the debate that followed upon the introduction of the measure, Lord R. Montague declared that the Home Secretary wished to destroy trades unions, whose powers, in his opinion, ought to be increased. Mr. MacDonald, the representative of the workmen in the present Parliament, said he was glad that the Home Secretary proposed to abolish the criminal part of the law now in force; but he doubted whether the tribunal intended for the administration of the Act was satisfactory. As ample time will be given before the second reading of the Bills for their consideration by the country, no doubt some good suggestions will crop up, and emendations will take place in the measures before their passing into law.

## IMPROVEMENTS AT CORK.

THE "Improvement Department" of the Cork Corporation received a deputation a few days ago, who appeared on behalf of the select vestry of the parish of the Cathedral. From the statement of the spokesman of the deputation, the object was a good and sanitary one—to bring before the council the wretched state of the approaches to that part of the city; and they did so first on public grounds entirely, because he thought anyone who knew that locality would see that the only road leading from the south part of the city to the west was that small street, Bishop-street, which was only about 18 feet wide. The traffic required some larger outlet. For sanitary reasons also some improvement was necessary, because the churchyard of St. Fin Barr's was a great deal higher than the surface of the road or the foundations of the adjoining houses, and as the very unhealthy matter oozed from the side of the graveyard, it would prove very injurious to the health of those residing in that locality. On these public grounds it was very desirable that a new street should be opened there, or the present one widened for the purpose of public convenience. There was no doubt that they also applied on the part of the St. Fin Barr's Cathedral, because they thought they had some little right to expect a decent approach to that Cathedral, on which so much money had been spent; and as they had been expending money for similar purposes on buildings elsewhere, and to which he need not allude, he thought the deputation had some claim on their consideration just as they had extended it to those other buildings. There were two plans which had been put into his hands—one was to open a new street entirely, ending at St. Fin Barr's brewery, and in carrying out this they would slope down the ground from the graveyard to prevent oozing out of the offensive matter. They would have to close the present street, and purchase buildings there if they carried out this plan. On the other side of the street the idea was to throw into the convent the remaining portion of the ground there down to the river. At the present time he was not going to enter into the question as to which was the best idea, but their own officers would be better able to advise the Council on them. The other idea was to allow them on sanitary grounds to take in twenty or thirty feet and to add it to the churchyard. When they did that they could open a new street immediately behind the present one, thirty or forty feet wide. They would have to carry away some old and wretched houses, the leases of which would soon expire. If they thought the first plan too expensive and adopted the second, they

thought it was the least the Corporation of Cork ought to do for them. Therefore, on public grounds, widening the street for traffic, and on sanitary grounds, in getting rid of this offensive matter that issued from the churchyard, he would ask them to refer the subject to the standing committee, who would get the Corporate officers to look at the plans the deputation would place before them, and give them an estimate of the expense.

The Rev. M. Archdall, as one of the deputation, spoke as a Prebendary of the Cathedral. He said that the community to which they belonged spent a large sum of money on the new Cathedral of St. Fin Barr, and that they were every day spending large sums of money in beautifying and enlarging it. He stated that travellers from all parts of the world visited Cork, and St. Fin Barr's was one of the places they went to see. On these and other grounds which he stated they asked the Corporation to assist and to take steps for the improvement of the approaches to the cathedral. On sanitary grounds he considered there was a reason for the called-for improvement, for the churchyard in its present state did not lead to the health of the city. The old remains of this churchyard are higher than the street below, and the sewage from it was without doubt most injurious.

A resolution, after a long discussion, was passed, referring the matter to the immediate consideration of the standing committee.

At the same meeting a letter was read from the hon. secretary of the Cork School of Art, in which he complained that the green in front was used as a refuge for idlers during the day, and that card-playing was carried on there. The matter was referred to the standing committee, and it is to be hoped that they will take steps for the abatement of the nuisance by erecting a substantial paling or other enclosure to afford the protection sought, without at the same time infringing the liberties of the people.

## GAS METERS.

DRY *versus* WET.

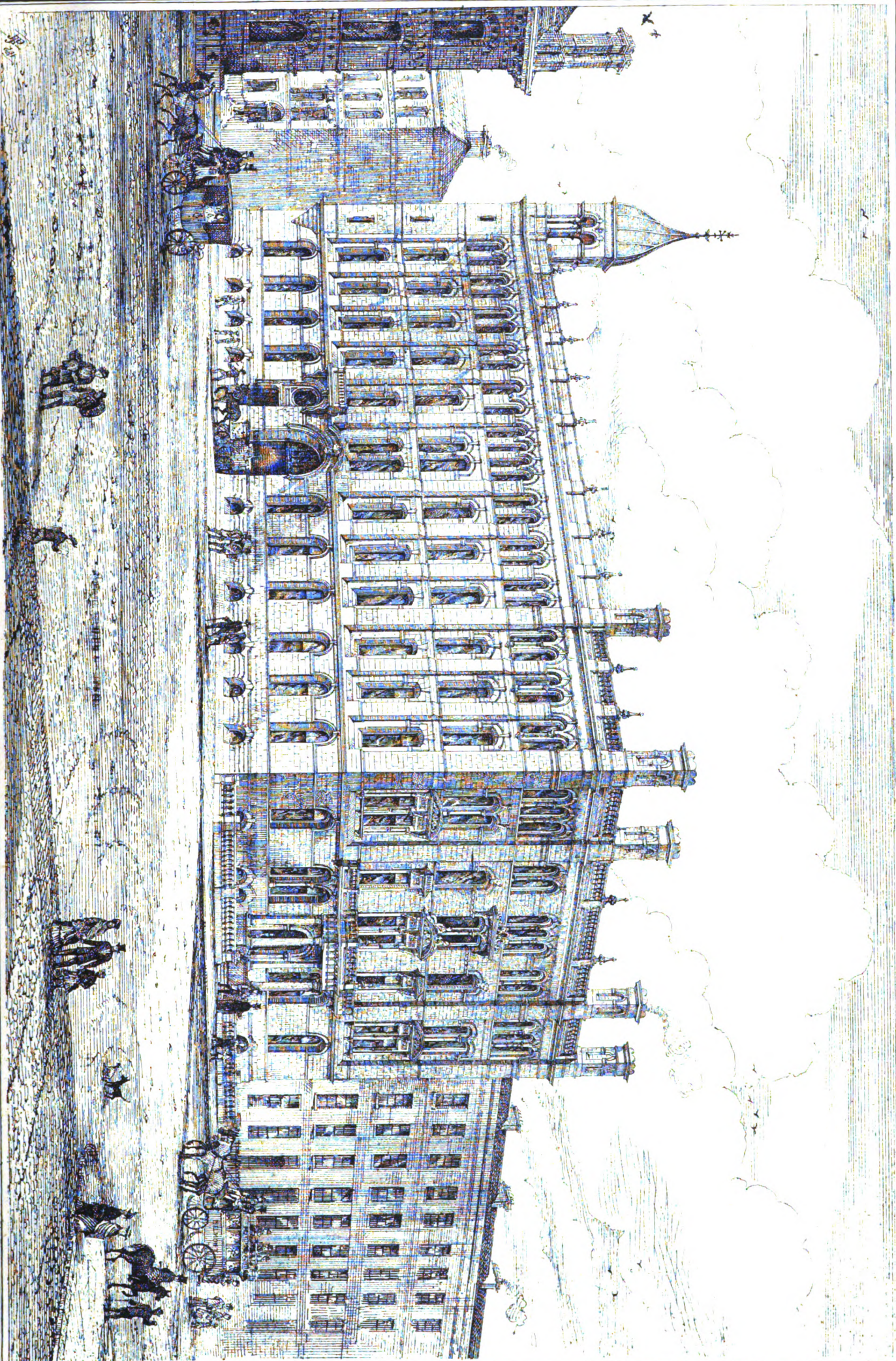
IN the Liverpool County Court during the past week was tried a case, the details of which forcibly show how little reliance can be placed on gas meters (wet) as honest measures, or even on the apparatus sanctioned by law which is used in testing their accuracy.

A consumer who paid for large bulks of gas on the faith of the bills made out from the indications of his meters, had, in consequence of his suspicions being aroused, the meters tested, and it was discovered that they had always registered a far larger bulk of gas than had ever passed through them. He sued the company for the amount of the overcharge, and the evidence given during the hearing of the case, as might be expected, was somewhat contradictory. The witnesses produced by the gas company admitted that the meters were working *unfairly* in favour of the company to the extent of 12 per cent. at high-water level, and when the water was lowered by evaporation, 4 per cent. in favour of the consumer.

The inspectors of meters examined for the plaintiff—men of as high position and ability as any in the kingdom—stated that both meters registered from 20 to 10½ per cent. in favour of the company at the highest and lowest levels of the water respectively. The most remarkable portion of the evidence, and from which Dublin gas consumers may take a lesson, was that given by the plaintiff, who stated that he had the wet meters replaced by dry meters, and since doing so the bulk of gas indicated as having passed through them was one-fourth less than what was registered by the wet meters under similar circumstances.

In our issue of the 15th of October last appeared a letter on this subject ("Wet or Dry Meters"). In it the writer stated that consumers of gas in Dublin "would act wisely,





Warehouses for Messrs Preston Smyth and Coy and John Preston and Co. Erected in O'Connell Square and Adelaide Place Belfast. 1874. John Lanyon, F.R.I.B.A., Architect.

Printed by Pim Brothers & Co. Photo Lith. Dublin.





when getting gas meters into their houses, by refusing to have wet meters, and insisting on dry meters being supplied to them." This advice might be judiciously acted upon by every gas consumer, particularly under the arrangements as to pressure existing at present.

#### WANTED—A HISTORIAN!

At a meeting of the Queenstown Commissioners, a Mr. Farrell proposed that a book should be got, in which all the remarkable events connected with Queenstown could be entered. He said that no history of Queenstown had been written up to the present, and he wanted to have this book form the nucleus of a future history. The chairman asked where would the historian be got? and he thought it was not a bad idea to have such a book placed upon the table for the signatures of the commissioners and everybody entering the room, and also a subscription for the new Cathedral. Another member said it was a sort of local "Hansard" that was wanted. The proposition to get the book was met by an amendment not to have the book, and a tie was the result, there being four members on each side. The amendment was carried by the chairman's casting vote. The commissioners seem to be unaware since their embodiment that they have at least been recording a very remarkable history of their uphill town. Should they, however, be ambitious for a local history extending back to the time embraced in O'Flaherty's "Ogygia," and find a fitting historian for the task, we can recommend to their notice *the Cove in Cork*. He knows all about Queenstown before it was christened.

#### THE PUBLIC LIGHTING OF WATERFORD.

THE yearly cost of the gas consumed in the public lamps of Waterford was lately settled by arbitration at £3 10s. 2d. per lamp. Considering the very few public lamps in Waterford, the price cannot be considered high. Mr. A. G. Vernon-Harcourt, F.R.S., Board of Trade Gas Referee, sat as umpire.

According to the report of the inquiry, as given in the *Cork Daily Herald* of the 25th ult., the superintendent of public lighting in Dublin made the following statement:—"That city (Dublin) was lighted under a contract with the Alliance Company, entered into in 1866. They supplied the gas at £2 each lamp. There were 3,400 lamps."

We would like to be informed where the 3,400 lamps are to be found in Dublin, and how the lighting of them amounts to only £2 per lamp, when we remember that the cost of the gas consumed in each of the Dublin lamps for the quarter ending January 5th, 1875, was 15s. 5d. each, supposing that that there are 3,400 lamps in the city?

Our recollections of the report of the debate at the meeting of the Cork Town Council, October 10th, 1873, caused us to believe that the people of the south of Ireland had had enough of Dublin gas advisers!

#### THE "RESTORATION" OF CHRIST CHURCH CATHEDRAL.

THE work of reparation and re-building of this cathedral and its adjuncts is proceeding fast towards completion. It is stated that the cathedral will be opened for service in another twelve months, although viewing it under its present garb of building appliances and incumbrances, together with that portion of the old work which still remains untouched, double the time mentioned would seem to be necessary. An opportunity will occur further on in the year, or when further progress is made towards completion, of giving some detailed particulars, together with an illustration or two. From a visit which we made since our last issue, we can bear evidence to the care and ability with which the work is conducted by

the efficient clerk of works acting under the architect, Mr. Street; and we can also speak in praise of the admirable workmanship executed by the workmen employed by Messrs. Cockburn, the builders. We have seldom witnessed better specimens of well-cut and well-jointed mason work than what we have observed at Christ Church. The stone carvings, figure and foliage work, on the capitals of the shafts within the cathedral are in many instances well and delicately cut, and evidence an improvement in Irish art much in advance of other recent "restorations" in this country.

#### CIVIC LYRICS.—No. LXXXVII.

##### GOD SAVE THE PEOPLE.

God save the People all  
From chronic dirt and Civic brawl,  
And punish jobbers great and small;  
God save the People!

For thirty years and more they've stood  
Foul air and fouler Liffey flood;  
Protect them—they are flesh and blood;  
God save the People!

Give them homes well drained and built,  
Void of smells and free from filth,  
And from every kind of guilt,  
God save the People!

Strike down knaves of every class  
Who barter health and "sell the pass";  
From Judas' kiss and sewer gas,  
God save the People!

Heaven will aid all good men who  
Will aid themselves and others too;  
Oh! then in each good work they do,  
God save the People!

CIVIC.

#### MESSRS. PRESTON, SMYTH & CO.'S NEW LINEN WAREHOUSES, BELFAST.

ONE of the best tests of commercial prosperity and progress of a town or community is to be found in the development of its building accommodation, which is necessarily in a direct ratio with the requirements of the trade at the time. Belfast, in this respect, has good reason for self-congratulation, seeing that the increase under this head within a comparatively short space is a subject of admiration and wonderment to those who give the matter any consideration. Handsome airy streets, wherein the houses are constructed on the most approved principles of modern architecture for the attainment both of comfort and of economy in space, now occupy the ground which, even in the memory of those who still regard themselves as little beyond the meridian of life's day, presented to the eye the verdant sward or the marshy field.

But the most conspicuous architectural feature in respect to Belfast is those mighty warehouses, the result and source of its splendid linen trade. Those large mercantile palaces never fail to rivet the attention of the stranger, and to impress on him the fact that he is now in a town where commerce has taken her seat, and made for herself a congenial home.

Belfast is the special abode of the linen trade in Ireland; through this manufacture has it attained its present position; on this mainly it depends for its success and prosperity in the future. Every omen, therefore, of the stability and advancement of this industry is to be hailed with gratification and pride by those who take an interest in the history of Belfast and its station in the commercial world. And if a large spirit of enterprise, an unshrinking energy, and high intelligence among her merchants be an earnest of success, the town will meet no impediment, at least in the present generation, to its advancement.

In connexion with the staple manufacture of Belfast, we have much pleasure in noticing and illustrating the edifice now completed by the firm of which Mr. John Preston is the head, at the junction of Donegall-square and

Adelaide-place. In the same locality are some of the finest of the linen warehouses; but even here the new building is distinguishable both for its extent and architectural beauty. It is five storeys high, measuring about 60 ft. to the top of the parapet. The portion of the building next the square is intended for the linen warehouses proper of Messrs. Preston, Smyth and Co.; the rere portion will be utilised as flax stores for John Preston and Co. The frontage in Donegall-square measures 80 ft., in Adelaide-place 136 ft., and in Adelaide-lane, which runs parallel with the square and at right angles to Adelaide-place, the frontage is 104 ft.

The building is designed in the Italian style of architecture, and is singularly harmonious and graceful in its outline. It is built of the red sandstone from Dundonald, County Down, which, being a native stone, we are glad to see can be so successfully used, and we have to congratulate Mr. Lanyon on its introduction. The bold use of Glasgow white stone in the piers and other portions of the front building is very striking and happy in its conception and execution. These piers are carried up and form the chimneys, the grouping of which adds materially to the effect of this portion of the building. In the angle of Adelaide-street and Adelaide-lane is constructed a very bold and graceful square turret, capped by a domed roof and handsome finial, and is about 95 ft. high to the top of the finial. The porch, which is of Glasgow stone, projects about 4 ft., and is carried on two Doric columns; and on either side of it is a very handsome stone balustrade, similar to that on the top of the building. The offices are approached by a short staircase of oak, and are fitted up with oak, walnut and other woods being used to enhance the effect. The ceiling is constructed of polished pitch pine. The offices, public and private, are on the principal floor, at the back of which are the brown linen, lapping, and sale rooms, and packing room. In the packing room is also constructed the hoist. To the front, on the first floor, are sales and stock rooms for white linen, as well as the offices for the clerks and private apartments for the principals. These have been elegantly furnished in various polished woods, and are rendered as commodious and comfortable as may be. The lapping rooms are situate in the rere. The upper floors are laid out as sample rooms, sale-rooms, and for handkerchiefs. The staircase is in the centre of the building, and, lit from the top, presents a strong and effective appearance. The stores in connexion with the building are capable of containing 300 tons of flax. Upon the safes and safed doors a great deal of attention has been bestowed to render them fire and burglar proof. The front of the building is relieved and enriched by a good deal of carving and ornamental detail emblematic of the business of the firm; this carving has been well executed by Mr. Purdy, jun. Messrs. Riddell and Co. have manufactured the wrought-iron grilles for the basement windows and other purposes, and have successfully carried out the extensive and peculiar gas arrangements; and Mr. Wiley the painting.

The building is a superb addition to the already long list of Belfast mercantile edifices, and altogether reflects the highest credit on the architect, Mr. Lanyon, and on the contractor, Mr. James Henry—both gentlemen already well known in their separate departments of the profession.

It is reported that an Italian professor has discovered that perfumes from flowers have a chemical effect on the atmosphere, converting its oxygen into ozone, and thus increasing its health-imparting power. As the result of his researches, he states that the essences of cherry, laurel, lavender, mint, juniper, melons, fennel, and bergamot are among those which develop the largest quantities of ozone, while anise and thyme develop it in a less degree. Flowers destitute of perfume have no such effect. He recommends that dwellers in marshy or otherwise unhealthy localities should surround their homes with a profusion of the most odoriferous flowers.—*Garden*.

## NUISANCES AND NOXIOUS TRADES.

THE slaughter-house question comes very often before our Civic body, and seldom on a motion to reform or abate the nuisance, but to extend it, as may be seen of late in the reports of the proceedings of our local body. We may mention here that an order has lately been confirmed by the Local Government Board of the sister kingdom, prohibiting the establishment anew within the metropolitan district the business of "a catgut manufacturer or catgut maker." Whether this restriction will interfere with the progress of music indirectly, we cannot say; but probably, if the order was ventured upon fifty years ago in Ireland, all the fiddlers of the four provinces would have assembled *en masse* at College-green to assert their rights. We are not aware whether any catgut is manufactured now in this capital, but we are aware that more noxious trades exist in our midst. By the order of the English board any person establishing anew such a business as the catgut trade, incurs a penalty not exceeding £50, and an additional penalty of like amount for every day on which such business is carried on. The order is made by the Metropolitan Board of Works, under section 8 of the Slaughter-houses, &c. (Metropolis) Act, 1874. Under this Act the businesses of fell-monger, tripe-boiler, or slaughterer of cattle, are prohibited. Here in Dublin there seems but little difficulty in the way of establishing nuisances or noxious trades. A "knacker" would find friends in the Dublin Corporation to back up his application, provided he knew the way to introduce his subject. We may expect soon to see licensed or unlicensed slaughter-houses in rere of our leading thoroughfares; and, if we understand aright, we have one already not far removed from the rere of Sackville-street. Under the present circumstances of the city in a sanitary view, there is nothing for choice between slaughter-houses in the heart of our city, and a polluted Liffey dividing it in two, and poisoning the inhabitants on either side.

## THE "GUINNESS" TESTIMONIAL.

SEVERAL years have elapsed since a committee was formed for the purpose of erecting a memorial, as a record of the munificence of the late Sir Benjamin Lee Guinness, Bart., in the matter of the "restoration" of St. Patrick's Cathedral. Since the last meeting of the committee in 1868, a number of the original members have died. A meeting was convened last week at the Mansion House, some of the old members attending, when a statement was made by Dr. Norwood in reference to the statue, and a letter of the late Mr. Foley thereon, wherein it was mentioned that the artist, in making the design for the pedestal of the Guinness Statue, it occurred to him that in consequence of the death of the munificent restorer of St. Patrick's Cathedral, any barrier to the placing of his statue within the sacred edifice no longer existed, and that it would be desirable to render the cathedral the shrine of his memorial. Mr. Foley ventured to think there would be more propriety in so placing the statue than in the intended spot outside the building. The placing of bronze works in ecclesiastical edifices was by no means unfrequent, and several were to be found in Westminster Abbey and other important resting places of the illustrious dead. In the interior of the cathedral the bronze metal would retain its colour and not become blackened, as we find it when exposed to the weather and the smoke of the city, and this would be of great advantage. These views had occurred to him in designing the pedestal, and as the design for that of the memorial would necessarily be regulated by the place the memorial would occupy, he would be glad to learn how far the suggestion would be likely to meet the acceptance of the committee. Dr. Norwood said he had placed Mr. Foley's letter in the hands of Sir Arthur Guinness, and, upon consultation with other

members of his family, Sir Arthur was of opinion that the original determination of the committee, which had been arrived at after a consultation, and at an interview with Mr. Foley, should be adhered to. Mr. Foley accordingly prepared the design for the pedestal with the view of its being placed in the spot originally selected. Although considerable delay had occurred, the statue was fully completed by Mr. Foley previous to his death, and the casts had been effected very successfully by one of the most eminent firms in England.

The following letter, received some time back from Mr. Tenniswood, the acting executor under Mr. Foley's will, was read:—

DEAR SIR,—As sole acting executor under the will of the late Mr. J. H. Foley, R.A., I beg to place myself in communication with you as hon. secretary to the committee for the memorial statue to the late Sir Benjamin Guinness, Bart. This work, which was very successfully completed during the lifetime of its lamented author, has been awaiting the plan of St. Patrick's Cathedral, which Mr. Brock (Mr. Foley's assistant) states to me was to have been forwarded here for the purpose of being engraved on the scroll held in the hand of the figure of Sir Benjamin Guinness. Perhaps, as the engraving of this plan is a simple matter and easily executed, you would prefer having it done in Dublin instead of sending the plan over here. If so, I shall have the statue packed and forwarded to you at once, and your instructions to that effect. I find that £500 has been advanced towards the cost of the work which I am to execute for £1,000.—Faithfully yours,

GEORGE E. TENNISWOOD.

John Norwood, Esq.

The statue is stated by all who have seen it to be a work of art worthy of the fame of the celebrated artist. The Aberdeen granite for the pedestal has been supplied by Messrs. Sibthorpe and Son, of Great Brunswick-street. If no unnecessary delay takes place, the public will shortly witness the erection and completion of the Guinness Testimonial.

## BOOKS RECEIVED.

*Handbook of House Property, &c.* By Edward Lance Tarbuck, Architect and Surveyor. London: Lockwood and Co.

THIS little volume will be found a really useful book of reference for non-professional as well as professional men. The book comprises three parts—the first relating to the law affecting lands and houses, the second the practice in valuation, and the third to procedure in building houses. There is scarcely aught that relates to house property and buildings, in matters of tenancy or ownership, and the law relating, but is touched upon in Mr. Tarbuck's volume. The chapters or sub-divisions on Dilapidations and Fixtures will be found clear and interesting. There is a large amount of valuable information in the Second Division on the Valuation of Property. The instructions and good advice given in the Third Division on Building Houses and Building generally, ought to be appreciated by all who read the work, but particularly by those intending to build and improve. We can commend the volume as a thorough useful and sensible work to all intelligent and provident men—to the men of "no property," as well as large property, for the former may one day become like the latter by utilising time and information.

*The Rudiments of Practical Bricklaying.* By Adam Hammond. Same publishers.

To skilled and unskilled operatives and architectural assistants, this work on Practical Bricklaying will be of service. Though nowise exhaustive, it is sufficiently comprehensive of the branch of which it treats to afford ample information not only of a rudimentary kind, but of a general practical kind, and technical withal. It would be a pleasure to us to know that bricklayers in general understand the principles of their trade; but

how many thousands are there not who know but little of arch drawing, cutting, and setting in the manner they should be known—the rule of thumb often supplying the place of the true geometrical rule? The book under notice treats of the different kinds of pointing, paving, tiling, materials, slating, and plastering, practical geometry and mensuration. The study of the two latter subjects should go hand in hand, or take precedence of the former, for no mason, carpenter, or bricklayer can know his trade properly without a fair knowledge of geometry and mensuration. The volume is illustrated with sixty-eight woodcuts; and, from foundations to roof, in the matter of materials and workmanship, it will be found an excellent little work in the hands of operative builders.

## TOUGHENED GLASS: ITS INVENTION AND APPLICATION.

WE give below a portion of a very interesting paper on "Toughened Glass," by Mr. Perry F. Nursey, C.E. The omitted portion of the paper related to the history of the early origin and manufacture of glass, and tracing its progress down to the time when the Venetians obtained a high excellence in its manufacture. The later history of its manufacture in France and England was also touched upon, and particulars of several processes described. At the conclusion of his paper, Mr. Nursey exhibited various specimens of the toughened glass, which he submitted to most severe tests, but only with the greatest difficulty did he succeed in fracturing one piece by repeated blows of the hammer. A discussion ensued on the part of the members of the Society of Arts, where the paper was read, a report of which will be found in the *Journal* of the society:—

It has remained for our own times, which have seen such remarkable scientific developments, to witness the production of a process by which glass is practically deprived of its brittleness. The inventor of this process is M. Francois Alfred de la Bastie, a French gentleman of property, who was educated as an engineer.

Many years since M. de la Bastie was impressed with the desirability of rendering glass less brittle, and so extending the sphere of its usefulness. Aware that the fragility of glass results from the weakness of the cohesion of its molecules, he argued that, by mechanically forcing the molecules closely together, and rendering the mass more compact, the strength and solidity of the material should be increased. This is exactly the line of argument an engineer would follow—it is one which led Sir Joseph Whitworth to produce such splendid results in the well-known Whitworth metal, and it is one also which has led to success in casting in other departments of engineering. It is, however, not one which landed M. de la Bastie on the right side of all his hopes and fears, inasmuch as he found, after long trial and experiment, that mechanical compression failed to influence glass in the slightest degree, even when applied while the material was in a fluid or soft condition. He therefore changed his tactics, and commenced to apply to glass a system of tempering, such as is usually applied to steel, namely, submitting it to a bath of heated oil. He knew well that by immersing heated glass in cold water he would only put the material in a state of unquestionable equilibrium, so that the least shock would cause it to break up, as in the case of the Rapert drops. He then sought to invert this result, to diminish, or even to remove, the extreme fragility of glass by tempering it by immersion in a fluid other than water. In attaining this object two essential objects had to be determined. Firstly, the point at which glass can be tempered without being put out of shape, and secondly, the medium to be employed for the immersion of the glass. The first condition M. de la Bastie found to be that degree of heating at which softness or malleability commences, when the molecules are capable of closing suddenly together, condensing the material when it is plunged in a liquid at a somewhat lower temperature. The second condition he found was satisfied by having a fluid capable of being raised to a much higher temperature than that of boiling water, without entering into a state of ebullition. For this purpose, and after a long series of experi-



ments, M. de la Bastie devised an oleaginous compound, formed of oils, wax, tallow, resin, and other similar ingredients in certain proportions.

Although the invention is apparently a most simple one, there are many delicate conditions involved, the disregard of any one of which constitutes the precise difference between success and failure. It thus happened that, seven years since, just as M. de la Bastie had perfected his invention, and had produced highly satisfactory results, he lost the clue to his success, and for two years was baffled in every attempt to re-discover it. He at length succeeded in regaining his secret, and has since been engaged in perfecting his invention, and putting it into a practical shape. He had to carefully adjust all the numerous details, for although the invention consists in simply heating the glass, and dipping it while hot into a heated oleaginous bath, there are many conditions involved. Thus glass articles may be underheated, and will not be susceptible to the effect of the bath, or they may be overheated, and will lose their shape; or, again, they may be heated to the right temperature, and yet be spoiled during the process of transference into the bath. Then, again, the exact proportions of the oleaginous constituents of the bath, and their precise temperature, have an important influence upon the ultimate result. All these points, however, with many others, have been definitely settled by M. de la Bastie, who has for some time past worked his process experimentally, and is now erecting a factory in France, in which to carry it on practically and commercially.

It may be as well that I should here mention that it is recorded by Pliny, that in the reign of Tiberius a combination was said to have been devised by which a flexible glass was produced, and that the machinery by which it was made was destroyed in order to prevent a depreciation in the value of the precious metals. We have, however, no evidence that this was the toughening process invented by M. de la Bastie, and the statement to which publicity has recently been given, in no whit detracts from the merits of that gentleman as the inventor of an important economic process. Nothing more than the bare fact above alluded to is on record, except it be, perhaps, that the hapless inventor was destroyed as well as his apparatus. But there is no Society for the Encouragement of Arts, Manufactures, and Commerce in those days.

In carrying out his process, M. de la Bastie finds it necessary to raise the glass to be tempered to a very high temperature. The hotter it is the less the risk of breaking the glass, and the greater the shrinkage or condensation. Hence the advantage, and often the necessity, of heating the glass to the point of softening, which is attended by the difficulty that glass in the soft condition gets readily out of shape, so that it must be plunged into the bath almost without touching it. In plunging the hot glass into a heated combustible liquid the latter is apt to take fire, and cannot easily be extinguished, so that time and material are lost. These difficulties M. de la Bastie has overcome by placing the tempering bath in immediate communication with the heating oven, and covering it so as to prevent access of air. The oven being charged with the articles to be tempered, they are made to slide into the adjoining bath without being handled, and the contents of the bath, having no supply of external air, are not liable to inflame. In order that the shape of the tempered articles may not be affected, particularly flat glass, the floor of the oven is made to cant, so that, when the glass is heated on it, it is turned to a sloping position, and the glass slides into the bath, along a surface arranged in it at the same angle as that of the oven floor. The clearness of the glass may be affected by the dust of the furnace flame, which is apt to settle on the glass and chill its surface. This is avoided by heating the glass in a muffle, to which the flame has no access, being applied externally. The shock of the fall of glass into the bath is prevented by fixing in it a sheet of wire gauze, or asbestos fabric, for the glass to fall on.

Of course the condition of working would be considerably modified, where glass manufacturers adopted the toughening process in their own works. In such case the toughening process would simply take the place of the present annealing process, than which it is much more speedy and economical. The glass would then be treated just at the point at which it passes from the fluid to the solid condition, and would not require re-heating. By the substitution of this process for that of ordinary annealing, the saving would be considerable. There would be, first, the saving of the fuel used in the annealing ovens; next, the saving of the time required for annealing; thirdly, the saving in breakages, besides a saving in labour as well as in other directions.

The physical change which glass thus treated

undergoes is no less complete than remarkable. Its extreme brittleness is exchanged for a degree of toughness and elasticity, which enables delicate glass articles to be thrown indiscriminately about the room, and more substantial ones to resist the impact of heavy iron weights falling from considerable heights. Upon my first making the acquaintance of toughened glass articles at the offices of Messrs. Abel Rey and Brothers, 29 Mincing-lane—Messrs. Rey being the representatives of M. de la Bastie—watch glasses, plates, dishes, and sheets of glass, both coloured and plain, were thrown across a large room, and fell spinning on the floor. Water was boiled in a tempered glass saucer for some time over a brisk fire, and the saucer was quickly removed to a comparatively cold place, and stood on iron, but was in no way affected by change of temperature. A small piece of plate glass was held in a gas flame until the corner became very hot. The glass proved a bad conductor of the heat, which did not extend any appreciable distance beyond the point of the contact with the flame, neither was the glass cracked from unequal expansion, nor was it damaged by sudden immersion in cold water. In order to judge of the comparative resistance offered by untoughened and toughened glass to the force of impact, a piece of the former, measuring 6 in. by 5 in. by  $\frac{1}{4}$  in. thick, was supported in a frame about half an inch from the floor. A two-ounce brass weight was then dropped upon it from 12 and 18 inches respectively without damage, but on the height being increased to 24 inches, the glass was broken into several fragments. A piece of toughened glass of the same size, but rather thinner, was then treated in the same way, at heights increasing a foot at a time, up to 10 ft. but without producing the slightest visible impression. I say "visible" impression, because it is possible that, by the repetition of the blows, the structure of the glass may have become imperceptibly altered. We all know that by repeated blows the fibrous nature of wrought iron becomes exchanged for the crystalline character of cast iron. Finding the two-ounce weight to make no impression, an eight-ounce iron weight was substituted, and was dropped on the glass from a height of two feet, and then of four feet, without fracturing it. On the height being increased to six feet, however, the glass broke with a distinct report. But here another phenomenon presented itself; instead of the toughened glass being broken into some twelve or fifteen large angular pieces, as was the ordinary glass, it was literally reduced to atoms. There were, it is true, some pieces about half an inch square, but these were traversed in all directions by delicate lines of fracture, and, on being gently touched, crumbled into small pieces, and many of these small pieces were easily reduced by gentle pressure into mere atoms, so thorough and so complete does the disorganisation of the entire mass appear to be. All these points will be practically demonstrated at the conclusion of my paper. A similar result is produced by placing a piece of toughened glass flat on the table, with a corner projecting over, and endeavouring to chip the corner off with a hammer. The corner will, after a series of smart blows, be broken off, but the whole mass will be at the same moment disintegrated and reduced to atoms. Another peculiarity about toughened glass is that the fragments are by no means so sharp, and therefore so capable of piercing the flesh, or of causing incised wounds, as are those of ordinary glass.

One important point of difference between M. de la Bastie's toughened glass and Prince Rupert's drops is that, although the skin of the former may be scored through with the diamond, the body cannot even then be broken through by ordinary force, much less does the mass fly to pieces and disintegrate, as in the case of the Rupert drops. Still wider will this difference appear, when I state that toughened glass is readily susceptible of a high degree of polish, and it can be cut by the wheel for lustre work and such like. The glass can likewise be engraved, either by hydrofluoric acid, or by Mr. Tilghman's elegant sand-blast process—a process which has been described in the *Journal of the Society of Arts*. It will thus be seen that toughened glass presents features which appear to some extent paradoxical.

It would appear that toughened glass possesses enormous cohesive power, but that if the equilibrium of the mass is disturbed at any one point, the disturbance or disintegration is instantaneously communicated throughout the whole piece, the atoms no longer retaining the power of cohesion. It is as though the glass was endued with a nervous system, a shock to which at any one point instantly and utterly demoralised the whole. It is important to note that neither transparency nor colour in glass is in any way affected by the process of

toughening, and the ring, or sound emitted upon the glass being struck, is nearly as clear in toughened as in plain glass.

In order to determine the relative values of ordinary glass and the toughened material, as regards their strength, I suggested to Messrs. Rey the propriety of instituting experiments, with the view of ascertaining their respective resistances to ordinarily applied stress. In these experiments I have been ably assisted by Mr. Kirkaldy, whose perfect testing machinery has, for some years past, supplied a want long previously felt by the engineering profession.

Twenty pieces of glass in all were submitted to bending stress, ten being toughened and ten untoughened. The glass was of French manufacture, and was that known as "Rive de Giers." Each piece of glass measured, as nearly as possible, six inches in length by five inches in breadth, and the samples had a mean thickness of .2250 of an inch. Each piece was placed with a bearing of half an inch at each end, and the weight was brought gradually upon the centre, in some instances by the testing machine, and in others by direct weights. Taking two pieces of glass, having about the same sectional area—the one tempered and the other untoughened—Mr. Kirkaldy's certificate shows that the untoughened glass yielded under a strain of 279 lbs., whilst the toughened glass did not give way until a stress of 1,348 lbs. had been reached. The same proportion, however, did not occur throughout the series; the toughened glass giving in some instances lower results. This arose from two causes, the diminished area of some of the samples of glass, and from the fact that, in some instances, the process of toughening had not been perfectly carried out; for the samples were prepared by M. de la Bastie under purely experimental conditions. The imperfect tempering was made manifest, after the destruction of the glass, in three ways chiefly: firstly, by the glass showing needle fractures, such as are seen in untoughened glass; secondly, by a faint milky line presenting itself in looking at the glass in section; and thirdly, by portions of the glass, a square inch in area, remaining unfractured, whilst the whole surrounding mass was reduced to atoms. But above and beyond all this, it was evident that the strains applied were such as could not possibly come upon glass articles in ordinary use; they were long-sustained pressures, tending at every increment of weight to alter the relative position of the particles of the glass, but affording them no opportunity of returning to their normal position, or, in other words, of utilising the elasticity of the mass. Glass articles in ordinary use are subject to sudden sharp blows, either from falling down, or from some extraneous substance being brought smartly in contact with them. Under these conditions the elasticity of toughened glass is called into play, and enables it to sustain a shock immeasurably beyond that which would suffice to destroy ordinary glass, as is shown by the experiments first described. Hence the proper tests for glass, either toughened or plain, are precisely those of smart and sudden impact, and not of prolonged stress.

Examination and experiment with this remarkable substance have revealed a number of most interesting facts with regard to its physical character. The limits of a paper, however, forbid me entering upon these considerations at such length as I could wish, and as the subject deserves. I may, however, mention that the microscope reveals the fact that the fractures follow a regular order, which gives a uniform shape to the crystals which they produce. Large crystals can be subdivided into several smaller ones with a similar result. The edges of the atoms, too, are not jagged and serrated, as are those of ordinary glass, hence their diminished tendency to cause incised wounds, as already mentioned. This peculiarity would afford a means of ascertaining whether the glass had been tempered or not.

The physical character of toughened glass has been made the subject of careful investigation by M. Victor de Luynes, who made the results of his researches the subject of a lecture, which he delivered at the annual meeting of the Société de Secours des Amis des Sciences. I hoped to have embodied in my paper some of the results obtained by M. de Luynes, but, unfortunately, the rules of the Société do not permit the publication of lectures until they have passed the examination of a committee, which process M. de Luynes' paper is only now undergoing. I may, however, mention that M. de Luynes had a furnace and bath in the lecture-room, and before his audience he tempered glass objects, which were afterwards successfully tested. As a general result, M. de Luynes has found that toughened glass will bear from 80 to 100 times the strain of ordinary glass. M. de Luynes also examined both plain and toughened glass by the aid of polarised light, the results of his examination going to show that toughened glass owed its pecu-

\* See *Journal*, February 12th, 1875, p. 257.

liar characteristics to a condition of intensified compression.

I have explained what toughened glass is, how it is produced, and what are its leading features, so far as at present ascertained. It therefore only remains for me to indicate the direction of its practical application. I say "indicate," for were I to enumerate all the purposes to which it can be usefully applied I should simply become wearisome. It is possible that there is not one corner in the whole domain of the arts, sciences, and manufactures, where its presence will not in time be made manifest in some way or other, and its usefulness appreciated, whilst for purposes pertaining to social life its application would seem to be unlimited. The miner would have a safer safety lamp than even Davy gave him, and the engineer's gauge glass would stand the highest steam pressure and alternations of heat and cold without fear or mischance. In chemical works it would supersede lead for tanks, and the present costly and unreliable glass pump tubes would be far less expensive, and infinitely more durable. So with brewers; they would find it a most useful friend in their vats, which they could thoroughly and easily cleanse, and keep free from those secreted stale germs of organic life, which develop and reproduce themselves in the process of fermenting beer, in a highly objectionable manner. For water pipes it would offer the advantages of strength, without corrosion. Assayers, I am told, would use it instead of platinum in some processes. In silk-spinning machinery, slider eyes, or guides, which are so soon cut through by reason of the speed at which the silk passes through them, would be rendered very durable if made of toughened glass. Another application, which has suggested itself to an ingenious American gentleman since the first notice of M. de la Bastie's invention appeared, is the manufacture of printing types, and rollers for printing presses, and this idea is now being developed into practical form. Seeing the wide range of domestic and social wants which toughened glass promises to meet, I know not where to begin, and were I to begin I should not know where to end. I can only observe in this connection that toughened glass promises to supersede porcelain and similar wares, and to add a real and permanent value to glass utensils of every kind. It will probably supersede enamel on culinary utensils, and in other similar directions.

It might be thought that this invention would prove a disadvantage to the glass trade, but the widely increased use of glass for purposes which its brittleness has hitherto unfitted it should be a sufficient answer to any such objectors. If there were any such, they would naturally be those connected with the glass trade. But I do not find them there. On the contrary, some of our most eminent glass manufacturers are now negotiating with M. de la Bastie's agents for licences to work the patent in England. I may observe, that it is not at all improbable that the invention will receive its first practical application in the Aquarium now in course of erection within a short walk of the house wherein we are now assembled.

Such then is one of the most notable inventions of modern times, an invention so remarkable, so unique, and apparently so fraught with import to the arts, sciences, and manufactures, as to render it probable that the name of De la Bastie will one day occupy no mean position amongst those of men by whose genius science has been enriched, and the nations practically benefited.

#### THE DUBLIN SANITARY ASSOCIATION.

At the third annual meeting of this association, a report was brought up, of which we print the chief portions. The addresses of the chairman, Mr. Jonathan Pim, Dr. Thomas Hayden, Mr. Frederick Pim, Dr. McDonnell, and Dr. Grimshaw were pertinent and to the point. The association, despite of the obstacles thrown in its way by the Corporation, has performed good public service, and the members in their remarks had good reason to find fault with the action of the Public Health Committee for their constant endeavours to pooh-pooh the reports of the Sanitary Association. A member of the Town Council (Mr. Lawlor) as also of the Public Health Committee, who addressed the meeting, expressed a wish of seeing a more amicable feeling existing between the civic body and the association. It is to be hoped that his fellow-members will act in the same spirit, and in a practical way. The report of the association tells its own tale, and shows what good could be done for the health of

Dublin if public bodies would only work in harmony. If the Corporation only did their simple duty there would be no necessity for the action of the Sanitary Association, though at the same time all honest volunteer efforts in a sanitary direction should be hailed with pleasure and appreciated by the citizens of Dublin, who have suffered so much, and who still continue to suffer, through municipal neglect:—

"The number of members is now 272, being an increase of 21 as compared with 1874. The income of the year amounts to £144 13s. The expenditure has been £162 1s. 2d., showing an excess of expenditure over income of £17 8s. 2d., which, deducted from £17 10s. 6d., the amount to the credit of the association at the end of last year, leaves a balance of 2s. 4d. in the treasurer's hands. Reports of nuisances have as heretofore been forwarded weekly to the Public Health Committee of the Corporation; 347 cases have been thus reported. The following abstract shows the action stated by the Public Health Committee in their replies to have been taken in regard to these complaints, no reply save a bare acknowledgment of receipt having been received from them since the 22nd of March. Proceedings to abate nuisances before receipt of complaint, 73; ditto since, 99; efforts of the authorities stated to have proved unavailing, 2; complaints referred to other departments, 11; complaints considered by the authorities unwarranted, or only partially warranted by facts, 30; outside the city boundary, 3; total, 218; no reply as yet received, 129—347. Classification of the nuisances thus reported—overcrowded houses, houses unfit for habitation, houses in a state injurious to health, insufficient or defective accommodation likely to cause injury to health, insufficient water supply, defective sewerage, filthy yards and archways, manure heaps and accumulations of filth, unsanitary streets and lanes, animals badly kept. In many instances it was necessary to bring dangerous nuisances repeatedly under the notice of the authorities before any effectual means were taken to remedy them; and even amongst those cases which have been attended to after repeated complaints we can scarcely point to one in which the remedy can be considered as more than temporary. In many places which we have again and again reported, our last inspections disclose only a somewhat improved condition. In Maclean's-lane the nuisance arising from the storing of manure is never likely to be permanently abated, so long as the Corporation scavenging depôts are suffered to remain within the city. It is quite absurd for the sanitary authorities to proceed against the owners of manure yards while they themselves are offenders on a much larger scale. The Local Government Board have, moreover, hitherto abstained from enforcing the 39th section of the Public Health (Ireland) Act. So long as the portion of this most important section, which refers to the removal of house refuse, &c., is allowed to remain a dead letter, as it practically is at present, it is useless to expect much permanent improvement in the condition of the tenements in the wretched lanes and courts which disgrace our city. Your committee having several times brought this important subject under the notice of the Public Health Committee, who always met their complaints by asserting that the machinery already in operation was sufficient, it became their duty to request the Local Government Board to issue an order under the 39th section of the act already referred to. The Local Government Board stated that they saw "no ground at present for interference in the matter." A conspicuous example of an unhealthy and neglected locality in Tennis-court, a narrow lane connecting Townsend-street with Great Brunswick-street, just opposite the Queen's Theatre. This wretched court contains nine houses, besides two at each end, which front towards Townsend-street and Great Brunswick-street respectively, and it may safely be said that not one of all these is fit for human habitation. The court has been a prolific hot-bed of disease for many years. Closely connected with the question of the prevention of the spread of infection is that of the removal of the sick to hospital; on which subject your committee have been at issue with the Public Health Committee for more than two years. Your committee desire to acknowledge their obligations to Edward Gibson, Esq., Q.C., M.P., for his valuable services in connection with the extension of the Artizans' Dwellings' Bill to Ireland. In their last report your committee mentioned that steps had been taken to organise a series of popular lectures on sanitary subjects. One lecture only was delivered last year, owing to the difficulty of obtaining suitable rooms and lecturers. This spring, however, your committee have been more successful, amongst other rooms kindly placed at their disposal by clergymen and others, St. Matthias' school-house having

been lent for the purpose by the Rev. Achilles Daunt. Offers were also kindly made by Roman Catholic clergymen who were connected with some of the National schools, to lend their schoolhouses for the same purpose, for which, however, the sanction of the National Board could not be obtained. Without wishing to condemn the action of the board, for which there are probably sufficient reasons, your committee much regret that they were not able to avail themselves of these offers, by which they might have obtained access to districts otherwise difficult of approach. In concluding this report, your committee trust that by persevering effort some gradual amelioration may be effected in the sanitary condition of Dublin, which compares so unfavourably with the cities and large towns of England and Scotland. This, too, in the opinion of your committee, calls for an official inquiry, which they think should be applied for by this association. Your committee believe that good has already been effected, and at all events they do not doubt that the labours of the association will, if vigorously followed up, lead to considerable success hereafter."

Among other resolutions carried at the meeting was the following, proposed by Dr. Grimshaw, who has already done good service in sanitary literature and other active labours on behalf of the health of Dublin:—

That the evidence furnished by the recently-published reports of the Census Commissioners for 1871, the returns of the Registrar-General for the past ten years, and the report upon the sanitary condition of Dublin by Dr. Burke, Physician to his Grace the Lord Lieutenant, and Medical Superintendent of Statistics at the General Registry Office, prove that the death-rate of the city of Dublin is excessive, and has continued to be so for a considerable period; and further, that according to Dr. Burke's report and the experience of this association, the sanitary condition of the city is unsatisfactory, the committee are hereby directed to take such steps as may be necessary to obtain a public inquiry into the causes of this excessive death-rate and the present unsanitary state of Dublin.

Dr. Grimshaw showed by the Registrar-General's returns for 1873—a year during which Dublin was considered exceptionally healthy—the average rate was 27·7 per thousand; in part of London it was 25·2; in Glasgow, 29·1; Edinburgh, 22; Birmingham, 24·9; Liverpool, 25·9; Manchester, 30·1. Thus the Dublin death-rate was only exceeded by that of two of the towns he had mentioned, and those two were notoriously unhealthy towns. A most important point with regard to such inquiry as the resolution proposed would be that the state of things which now existed in Dublin had existed for a very long time—so far back, in fact, as the first year of the present century. He read a letter addressed in 1801 by Dr. Maurice Morgan to the Commissioners of Wide Streets, complaining of the state of the houses in the poorer districts of the city at that time. He also read an extract from a report describing the state of the city in 1818, showing that the causes of complaint that exist now were in existence then.

The necessity of providing ambulances for the sick was dwelt upon by the speakers who addressed the meeting—a subject to which we have for some years directed attention, as also the abolition of the manure depôts kept up in different parts of the city by the Corporation, which have been a chronic nuisance and generating hot-beds of disease. The nuisance of the Liffey, and the nuisances existing in our streets north and south of the city are sufficient at any time to breed a plague, and the slaughter-house nuisance is in itself intolerable.

#### ARCHITECTURAL ASSOCIATION (LONDON).

At the ordinary general meeting of this association, under the presidency of Mr. Birch, a paper was read by Mr. Moreland, jun., "On the Detail of Cast and Wrought-Iron Girders, and their Application to Building Purposes." The author treated the subject in a comprehensive manner, affording a number of illustrations of use and adaptability of iron to building purposes, apart and in combination with other materials. The use of

concrete was also described particularly in connection. At the conclusion of the paper the president said that there could be but one opinion with regard to the value of the paper. It showed them the necessity of studying the subject for themselves, for there were very few of them who had not met with the question of iron and its application to building purposes in the course of their practice.

### THE ROYAL IRISH ACADEMY.

THE Academy met last evening, SAMUEL FERGUSON, LL.D., V.P., in the chair. There were nine papers announced for reading, of which six only were got through, viz.:—By C. R. C. Tichborne, Ph. D., "On the Dissociation of Molecules;" by D. Crofton, Esq., "On a Coincidence between a Cuneiform Inscription of Nebuchadnezzar and a Passage in the Book of Daniel;" by Professor M'Nab, "On the Structure of the Leaves of certain species of Conifers;" by the secretary, for C. E. Burton, F.R.A.S., "On Observations of the Zodiacal Light;" by S. Downing, LL.D., "On the Motion of Water through Curved Tubes;" by Edmund Davy, M.D., "On a Ready Means of Detecting Compounds of Arsenic and of Antimony." Dr. Ferguson's paper, "On the Alleged Literary Forgery respecting Sun Worship on Mount Callan," will be read at next meeting. Four members were elected. At a meeting of the Council on 7th inst. it was resolved—"To recommend the Academy to grant £25 to Dr. Carte out of the Parliamentary Grant for Scientific Reports, for the purpose of investigating the excavations in the bog of Ballybetagh."

### DEATH OF MR. EDWARD WELBY PUGIN.

THE following obituary notice of the above-named gentleman appears in the *Kent Argus* of Saturday:—

It is with deep regret that we have to record the death of Mr. E. Welby Pugin, which took place at 111 Victoria-street, Westminster, last Saturday. For some weeks previously Mr. Pugin had been unwell, but there was no cause for serious apprehension. On Saturday evening he retired to his bedroom and asked for his medicine, and while this was being brought to him he suddenly fell back into the arms of his brother, Mr. Cuthbert Pugin, and died instantaneously.

Our readers will, we feel sure, be glad to have some particulars of the life of one who has lived so long amongst us, and whose name will not be forgotten by many in this town with whom he came in contact. Mr. Edward Welby Pugin was born in March, 1834, and his death has ended a life which was, humanly speaking, in its prime. Few young boys of seventeen have had so heavy a burden of responsibility resting on them. Nearly the whole of his father's fortune was spent on the church in which he now rests, and other works of a similar nature. On St. Augustine's alone he spent £15,000. Here then was the time to test the worth and mental aptitude of Mr. Edward Pugin, and nobly did he maintain his father's reputation. By his own unaided genius he at that early age completed the works which his father had left unfinished. This proof of genius and vigour of action at once showed the world that the well-known saying, "The king is dead, long live the king," was fulfilled in his case. And with great satisfaction we now learn that the name of Pugin is likely to live in the person of his brother Cuthbert, who has for fifteen years worked with him, and for some considerable time past has been of great assistance to him.

It is seldom that genius descends from father to son so unmistakably as in the Pugin family. Count Pugin, in the last century, obtained a gold medal in Rome, as a mark of his great talent as a painter. Mr. Edward Pugin was also knighted by Pope Pius IX. (the Order of St. Sylvester) for the noble building which he designed near Bruges, under the patronage of Notre Dame de Dadezeille. The works in connection with which his name is best known are St. Cuthbert's College (gained after competition with other architects), Belmont Priory, the Catholic churches at Kensington, Peckham, Stratford, Leeds, Barton, Sheerness, Gorton, and the monastic buildings with Mr. Luck's house in Ramsgate. In Ireland, St. Peter and St. Paul at Cork, the Augustinian, Dublin, Kingsdown parish church

for the late Lord Kingsdown. He also, with his partner, Mr. Ashlin, built the Cathedral at Queens-town. The following are a few non-ecclesiastical buildings of note:—The orphanages of Hellingly and Bletchingley for the Duchess of Leeds, Carlton Hall for Lord Beaumont, Scarisbrick Hall, Lancashire, Seel's buildings, Liverpool, and need we remind our readers of the Granville Hotel, which has been so great a boon and attraction to visitors?

When Mr. Pugin went to America last year he combined business with relaxation. He brought back with him orders for over thirty churches, views of some of which have appeared in the *Builder* and other architectural papers. For Washington and Chicago several churches were designed.

The wonderful manner in which he utilised time and, we fear, undermined his health, is perhaps not known to our readers. The church of St. Peter and Paul at Cork was open to competition. Six weeks were allowed during which designs might be sent in. He did not make up his mind to enter into competition till within three days of the time; but having made up his mind, worked three days and three nights at his board and produced the design which was finally chosen from amongst those sent in by the leading architects of Great Britain. He frequently would leave home and travel all night, then set a bath, work all the following day, and then again travel the next night and work the next day. This incessant night travelling and day working was frequently kept up for weeks. One church at Stafford he never saw save at night time, when he would arrive by train and get torches to inspect it. Frequently he would complete designs for a church which would meet the full approbation of his clients, and yet at the last moment he was not satisfied with them and would throw them in the fire, and set to work to make fresh ones. This, too, with no pecuniary recompense, but solely through love of his art.

It is not surprising that a man who was so severe upon his own work, should, when he came to criticise the work of his brother architects, occasionally exceed the bounds of professional etiquette.

The body was brought from London on Wednesday last, to the London, Chatham, and Dover Railway Station, where all arrangements during its stay were most efficiently managed by Mr. Veal. The outside coffin was of polished oak of Gothic shape, made by friend, Vinten and Son, on which was the following inscription:—

Here lies the body of  
EDWARD WELBY PUGIN,  
Eldest son of the founder of this church.  
Who slept in our Lord, June 5th, A.D., 1875,  
In the 41st year of his age.  
"On whose Soul, Jesus, have mercy."

THE BOOK OF LISMORE.—A singular story is told of the "Book of Lismore," an Irish chronicle of the fourteenth century, belonging to the Duke of Devonshire, and recently lent by his Grace to the Ordnance Survey Office authorities at Southampton, for re-production in facsimile by the process of photo-zincography. This manuscript was discovered in the year 1814, enclosed in a wooden box, together with a fine old crozier, built into the masonry of a closed-up doorway, which was reopened while the old castle of Lismore underwent repair. Great interest was naturally excited among antiquaries of the time, and among them was a certain Mr. Dennis O'Flinn, of Shandon-street, Cork, a "professed" Irish scholar, but, as O'Curry said of him, "a very indifferent" one. O'Flinn, however, on the strength of such reputation, induced the Duke's agent to lend the manuscript to him. It was detained for a year, and during part of that time, according to the borrower's account, was in the hands of a copyist. From the time of its return until 1839, the precious volume remained locked up and unexamined; it was then lent by its noble owner to the Royal Irish Academy to be copied by O'Curry. The discovery was now made that the book had been mutilated, and that in such a way as to render what remained of the original almost valueless. Every search was made, but no trustworthy clue was got until the manuscripts of Sir William Betham, bought for the library of the Royal Irish Academy, were found to include copies of the missing portions. By means of a note attached to these copies, the holders of the originals were traced, and were induced to part with their somewhat doubtfully acquired property for the sum of fifty pounds. The whole volume has since been excellently repaired and handsomely bound by the present Duke of Devonshire. The contents of it include—ancient lives of Irish saints, written in very pure Gaelic; the conquests of Charlemagne, translated from Archbishop Turpin's celebrated romance of the eighth century; the story of St. Peter's daughter Petronilla, and the discovery of the Sibylline Oracle; an account of St. Gregory the

Great; the Empress Justina's heresy; accounts of Charlemagne's successors, and of the correspondence between Lanfranc and the clergy of Rome; extracts from Marco Polo's travels; accounts of Irish battles and sieges; and a dialogue between St. Patrick, Caoilte, MacRonsin, and Oisín, the son of Fionn MacCumhaill, in which many hills, rivers, caverns, &c., in Ireland are described, and the etymology of their names recorded.—*Academy*.

### TO CORRESPONDENTS.

THE O'CONNELL CENTENARY.—The first public suggestion was made in these pages, as "An Inquirer" may see on reference to our files; but it was made apart from political or religious considerations, and in consonance with the character and objects of this journal.

THE GUINNESS WHARF.—It is a very useful appliance for the owners, but it is not an improvement to Victoria-quay—quite the reverse. It would have been far better if a dock or wharf had been constructed on the Messrs. Guinness' grounds on the opposite side of the way, with an entrance channel across or under the road from the river. A flat iron girder roadway could have been easily constructed level with the ordinary thoroughfare. The tide answers always at a certain height for the departure and arrival of freight.

AN ARCHITECT (London).—Thanks; documents to hand, and papers sent on as directed.

A SOLDIER (Dublin).—We fully sympathise with you, and we will see what can be done in the matter. The question of "Barrack Damages" must be ventilated, for we are aware that soldiers have often suffered a rank injustice in charges that should never have been made upon them. Wilful damage is one thing, but damages perpetrated by the work-people of barrack contractors is another. There must be a little light let in upon the subject.

THE RELEASED CABINET MAKERS (London).—The five London cabinet makers were, we hold, most unfairly treated, and the law did not legally empower the governor of the prison to subject them to the degradation they suffered. It is a moot point also if their conviction was valid. The "six carpenters" who suffered previously is another case in point. The new Labour Laws Act will, we hope, wipe out such blot in our statutes, and do strict justice in future between masters and workmen.

W. M'E. (Derry).—A drawing on the description of paper you mention will answer the purpose of photo-lithography.

J. C. (Tum).—The delay has arisen owing to the occurrence of circumstances which we could not have anticipated. Several matters in type are held over for want of space.

DEATH.—On the 14th inst., at 98 Amiens-street, Mr. Michael J. Dunne, builder.

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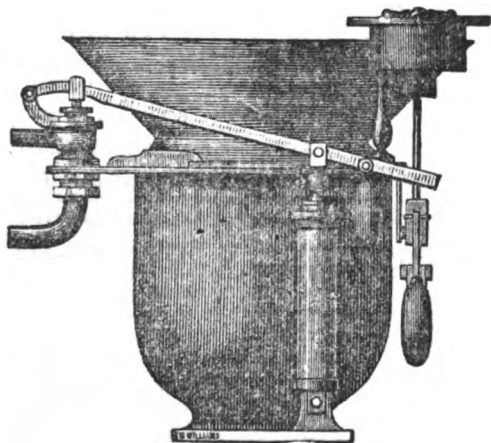
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# The Irish Builder.

VOL. XVII.—No. 373.

## Non-Historic Stone Structures.\*

HIS book is a useful contribution to the primitive architectural history of the past, and it is both readable and interesting withal. The papers comprising the volume were originally written by the author for the pages of the *Athenæum*

and *Fraser's Magazine*, and they were subsequently read at meetings of the Anthropological Institute, abstracts of them having been published in the *Journal* of that society.

A knowledge of the many pre-historic ruins which are scattered in mysterious groups over the surface of the Old World is indeed indispensable, and we agree with our author in his preface—"It is possible that eventually the study of these dateless ruins may indicate the tracks of ethnic migration, with some approach to a proper estimate of their chronological eras, or, at all events, of their relative antiquity—a point on which at present our best archæologists so widely differ." We agree with Mr. Oliver in also thinking that "the pre-historic archæology of the coasts and islands of the Mediterranean has an especial interest when compared with that of Ireland." For this reason the author claims the indulgence of Irish antiquaries for ushering upon the world his small contribution. We are sure his opinions will be treated with respect by all considerate native antiquaries, however inclined they may be to differ with him in his conclusions.

Mr. Oliver's work is divided into five parts—I. He describes "the Torre Dei Giganti" of Malta, accompanying the chapter with an illustration of the Giant's Tower. II. "The Tantalais Group of Mount Sipylus" (illustrated). III. The Dolmen-Mounds of the Albegna, Tuscany (illustrated). IV. "Stone Monuments of Sardinia—their mysterious Origin and Destination" (illustrated). V. "Dolmen-Mounds of the Boyne, New Grange and Dowth" (illustrated). The last two chapters possess an especial interest, indeed, for Irish archæologists, but indeed all the chapters have more or less bearing upon the history of structures somewhat similar in their origin, and possibly in their uses, in Ireland.

In describing the curious structures of the Tantalais Group (part II.), of which some illustrations are given, we are afforded what will be accepted as evidence in favour of the Phallic theory of Henry O'Brien in connection with the origin of our Round Towers. Mr. Oliver says:—"At two hundred yards distance and further down on the rocky ridge, are three more tumuli, one below the other, and forming a species of boundary in this direction, as no others lie west beyond them; they are all domical, and all supported by retaining walls, the two uppermost by several courses of squared Hellenic [horizontal]

masonry, with remains of plinth, and the lowest with reticulated Pelasgic masonry. . . . At the foot of the lowest of these lies one of the simply carved finial stones, which have been looked upon as having surmounted these structures. This one consists of a pillar 4 ft. 5 in. long, with rounded top, and 1 ft. 9 in. in diameter, with a roughly-squared base, and of rude workmanship altogether. Of course, those people who fancy they see traces of Phallic worship in everything, will have it that this represents a Phallic emblem: that it was simply an ornamental finish seems quite as probable. Mr. Wood will shortly secure this stone for the British Museum. These tumuli have apparently all been dipped into, but whether they were chambered or not was not apparent at the time of recently visiting them. Several others on the hill-side were looked at, but all are more or less ruinous, and in one the side blocks of an entrance gallery were plainly visible, and seem to denote access from the exterior; but to what form of interior chamber could not be noted, all trace having disappeared. Not far from this structure was a regular kist or stone grave, the cap-stone off, and the remains of the superimposed cairn just traceable in the faint circle of rude stones which remained."

"About a dozen of these domical cairns can be counted within a short distance, and in all probability, at least three, if not four times that number exist in this locality. It has generally been taken for granted that they were all tombs; but this can hardly yet be said to be the final conclusion, as it is not impossible that some of these structures might have been used as treasuries or granaries, if not dwellings. At all events they would seem to indicate a town, settlement, or cemetery, of the ancient Lydians, or of some pre-historic race preceding them, by whom Mr. Fergusson sees no reason for doubting these structures to have been erected as far back as the eleventh or twelfth century B.C. At the same time, beyond the silence of history, is there any reason for disconnecting them from the period during which the tombs of Sardis were constructed in the sixth century B.C.? Whoever the builders were, whether Pelasgic or Autochthonous, they knew uncommonly well how to build up solid masonry, some of which, especially that which is built in courses, with squared and bevelled stones, is not dissimilar or inferior to the masonry of that magnificent defensive wall, built by the Ephesians along the crest of Mount Corissus."

The builder of the clochans or other pre-historic stone-roofed dwellings in Ireland, may be said too to have known uncommonly well how to build up solid masonry. The stones are often large and well fitted; some shew excellent workmanship, and many of them, according to Mr. Brash in his lately-published work, are water-tight to-day after several centuries of existence.

In speaking of the structures Nuragghi Sardi particularly described in part IV., to which we would refer all antiquaries interested, Mr. Oliver observes:—"In size and general resemblance, the nuragghi may not inaptly be compared to the well-known modern Martello towers which are dotted along portions of the English coast. At Sta. Barbara there is a substantial substructure of polygonal form, with four rounded bastions, from the centre of which rises the

characteristic truncated conoidal tower, built with horizontal courses of masonry, its sides approaching the perpendicular, the slope being at about 80° to the horizon level. The masonry of the entire structure is of hewn stone, well fitted and cemented, of large proportions, almost Cyclopean at the base, but diminishing in size and solidity towards the summit. One noticeable feature of the tower (a feature peculiar to the nuraggh) consists in its being built with *double* walls. The interior structure contains domed crypt-like chambers, of microlithic masonry, and of a conical or demi-ovoidal form, whose section is that of a pointed arch. In some instances these chambers appear to be regularly vaulted, with key-stone complete; but generally, as at Sta. Barbara, these horizontally-constructed domes are formed by the corbelling or bracketing-in of the successive layers of masonry, and on a smaller scale representing the Atridan treasuries or vaults at Mykenæ. The height of these 'beehive' chambers is considerably greater than their width. At Sta. Barbara, taking De la Marmora's measurements, the height of the chambers on the ground floor is 17 ft., and the diameter at the base 17 ft. The space between the exterior and inner walls or shells of the tower (De la Marmora, Fergusson, and others speak of the wall, in fact of the whole building, as a solid mass; but to me it certainly, both in this and other examples, appeared, as above noticed, of double construction) is occupied by a steep spiral passage or dilapidated staircase, affording the means of communication between the upper and lower storeys. The principal doorway is entered on the first floor from the exterior platform facing the south, and a smaller aperture, through which one can crawl with difficulty, in the base of the structure in the outer wall; the doorway in the inner wall opposite being of ordinary dimensions. Several convenient niches, cells, or passages open from the principal chambers wherever the space between the double walls beneath the spiral staircase can be so utilised. In each of the bastions of the platform is a smaller conical crypt, with narrow flues (they cannot be called passages) communicating with the interior of the main building, and form what seem to be cellars. Two of these are broken away, exposing their sections, showing them not to be dissimilar to the mysterious *souterrains* in the Irish raths. How the summit of the tower was originally fashioned, it is impossible to decide with any certainty. De la Marmora gives a flat platform; but I should feel inclined to suggest that they were domed, with a parapet forming a *chemin des rondes*. The section of the doorways and passages is the Pelasgic horizontal arch, and the wedge-like segments of stone masonry have been hewn and fitted with accurate nicety. In the interior and at the base of the building the cement remains, whilst higher up and externally it has disappeared through weathering; and this has doubtless given rise to the statement often made that the nuragghi are formed of loose unhewn stones piled up without mortar. Such are the principal features of the nuraggh at Sta. Barbara, and also of other nuragghi, with the exception of the form of substructure, which is very variable, and which is often so varied as to form a mere mound. As far as the main tower goes they are all very similar—

\* Ex uno disce omnes.

On visiting this nuraggh, I found the apex

\* "Nuragghi Sardi, and other Non-Historic Stone Structures of the Mediterranean Basin." By Capt. S. Pasfield Oliver, Royal Artillery, F.S.A., Corresponding Member of the Anthropological Institute, &c. With illustrations by the Author. Dublin: Carson Brothers, Grafton-street. 1874.

of the vaulting of the lowest chamber had tumbled in. We scrambled down the dark spiral ramp (for the staircase is almost obliterated), stumbling over fallen rubbish, &c., and lighted a bonfire in the lowest vault. It seemed to me comfortable and snug, and to afford better barrack accommodation than many casemates of old-fashioned forts in Europe."

From the above description, the reader will understand pretty clearly the form of stone structure known as "nuraggh"; and doubtless the Irish reader interested in the architecture and history of similar Celtic structures will draw his conclusions. Mr. Oliver's description of these mysterious stone monuments will probably suggest thoughts and lead to comparison, which may evolve some new facts hitherto unnoticed in connection with the pre-historic structures of this country. A perusal of his small volume will not be time lost, for apart from the nature of the work the information conveyed to the general reader will be found useful.

Further on in his work, Mr. Oliver, after alluding to the views of others as to the specific uses for which these strange structures were built, arrives at the conclusions thus stated:—"Shelter, cover, strength, resistance—in short, defence, whether against wind or weather, bird and beast, foreign foe or native robber, is breathed by every stone in the nuragghi." . . . . "The fact is that they are pre-eminently suitable for just such means of defence against attack, as we may presume their builders and assailants to have been acquainted with some thousand years since, *i.e.*, in the days of slings and stones, arrows, sword, spear and axe, &c. With water and provisions, for which there is ample stowage room in their primitive casemates, a dozen or two of men might hold out for weeks against any numbers who might venture to attack these impregnable little forts."

As to the want of accommodation for a garrison, and of men being able to live, cook, and sleep in these circular apartments, Mr. Oliver replies:—"Without too closely restricting the sanitary regulation allowance of cubic feet of space per man, five-and-twenty men could be accommodated in the nuraggh of Sta. Barbara, and I should not hesitate to quarter more men there on an emergency. They have probably held yet greater numbers, including women and children."

A siege of several weeks would, we opine, render the sanitary condition of the nuragghi, according to modern notions, a very unbearable one; and, though slings and arrows would not do much harm, the action of fire (with smoke) in combination with other available materials would. Mr. Oliver proceeds to support his fortification theory, the great argument against which is, that the number of these monuments cannot be accounted for by any imaginable state of society requiring three thousand castles, and yet no fortified cities. Mr. Oliver puts his case, we must say, in a fair and pretty forcible manner in reply to those who are opposed to his theory; and, in doing so, he takes a peep at the possible state of society that existed when these monuments he described were constructed. We cannot follow our author any further at present on the subject of the "Nuragghi Sardi."

In part V. the Dolmen Mounds of the Boyne, &c., are treated and compared. We

have only space for a short extract from the conclusion of his notice of these mounds:—"To whom are we to assign the origin of these mounds? Their inception is probably due to the great Mongoloid tomb-builders of Turan, viz., the Euskarian, long-headed, swarthy, dark-haired Firbolgs, sometimes called the *virii Bullorum*, with stone implements and weapons: they may have been improved upon, inhabited and fortified by the succeeding Aryan race of Celtæ, the blue-eyed, fair-haired, bullet-headed Tuathade-Danaan, the *Plebes Deorum*, with their conspicuous metallurgic skill, the manufacturers of the gold torques and such like, and the originators of the Ogham scribings."

In conclusion, we will only add that Capt. S. Pasfield Oliver's little work is very suggestive and interesting, and also a contribution of merit and value to the history or theory of Non-Historic Stone Structures.

#### THE LITERATURE OF GOTHIC ARCHITECTURE IN IRELAND.\*

In fairness to the Rev. Mr. Smiddy, whose peculiar theory respecting our Round Towers was alluded to in our last paper, we now give further extracts. Speaking of our mystic pillar towers he says:—"Firstly, they are found near Episcopal churches of the early ages. Among these are to be included the churches of monasteries governed by mitred abbots, who, in the early periods of Christianity in Ireland, performed episcopal functions for the people in their immediate neighbourhood. In many instances a small diocese was attached to a monastery thus circumstanced. The Irish Annals, especially those of the Four Masters, make frequent mention of the mitred abbot, or, as they call him, 'bishop and abbot,' in recording his death and his virtues, or some other important circumstance connected with him. By the side of this church stood the ancient Round Tower, or the reed-house; and there in many instances it stands to-day, when the church and monastery have totally disappeared. Those who received the waters of regeneration in the lower compartment of that baptistery were immediately afterwards confirmed by the bishop-abbot, and they were also admitted to holy communion. This sufficiently accounts for the fact, hitherto unexplained, of the Round Tower being found near certain churches, while near others no trace of it has ever been seen."

We confess we cannot see the force of Mr. Smiddy's reasoning, or how the fact is accounted for. Certain churches at present stand in close proximity to our Round Towers, but they are not the original churches in each instance that occupied the site, nor is their architecture of the same period as the towers. Our early churches were of wood, and our Christian ancestors would not erect baptisteries of stone, thus bestowing, in the words of Mr. Dalton, incomparably more care on the erection of the tower than the church, or the adjunct of the church, supposing it to be such. Of course Mr. Smiddy concludes that the church and the Round Tower, or otherwise the baptistery, were coeval structures; but an examination of their architecture, shape, construction, and the almost total absence of ornamentation from them (except in rare cases), and these bearing traces of inserted or after-work, go to prove that our towers cannot belong to the era of our churches, though they were appropriated to ecclesiastical uses subsequently.

\* See ante.

"Secondly," says Mr. Smiddy, "the Irish Round Tower has, in form, site, and emblem, the peculiarities of the ancient baptisteries. These were round, high, and large, and so was the Round Tower. They were generally placed opposite the principal entrance to the church, and so was the Round Tower. As we have already seen, the door in our ancient churches was always placed in the western gable; and in that direction, at a little distance away stands the *cuilceach*, or reed-house, with its elevated door generally facing the door of the church. In some instances it is found a little to the right or to the left of the western gable of the present church standing near it; but perhaps that present church is only a successor of the original sacred structure which stood more directly opposite to its reed-house. The door of the ancient church was always in the western gable, and the Round Tower was invariably in that direction. Where the door of the Round Tower deviates to the right or to the left from due east, it is to be inferred that the west end of its early church was a little to the right or to the left of it, for the door of the tower always looked towards the door of the church."

We think in the above extract the Rev. Mr. Smiddy has asserted a good deal, but proved little or nothing. It is quite easy to infer, but it is more difficult to prove; but neither a "probable" or a "perhaps" will satisfy the mind of this exacting age. Our author admits that there might be an original church preceding the present one, but he does not say of what materials the original church was constructed, nor why so many churches disappeared while the towers remained undisturbed. Dr. Lanigan and Dalton, we have seen, differ as to the aspect of the doors of the towers, and according to Mr. O'Neill, who examined a number of them, they varied from west-of-north round to south—the greater number looking more or less south-of-east, though there was every direction included in the eastern semicircle from north to south.

Mr. Smiddy continues—"The emblems will fully establish our theory. In the description of the ancient baptisteries it is stated that they generally had an emblem, a figure, or image of St. John the Baptist. The Irish Round Tower is in itself an emblem of him. In the Gospel he is compared to the 'reed shaken by the wind,' from the circumstance, perhaps, of his having appeared among the reeds when baptising the people in the waters of Jordan." The simile of the reed shaken by the wind in its application to our Round Towers possesses no force. Where lies the comparison between a waving weed and the solid, unwavering, and resisting pillar tower; between the perishing weed of a season and the tapering yet perpendicular shaft piercing the blue vault of heaven, almost triumphing over time and challenging the future? There is here no emblem of the saint or of the water, and we fail to see in what we have quoted, or what we are about to quote, a proof of the theory that our Round Towers were originally constructed for baptisteries.

Hear our author farther—"We find in the description of the ancient baptisteries that they had on them often an image of St. John the Baptist, and also of a lamb. These identical figures are found on one of the Round Towers. In Scotland there are two Round Towers in exact shape and form like those of Ireland. One stands near the old Episcopal Church of Brechin, and the other near the old Episcopal Church of Abernethy. These were manifestly erected by the Irish ecclesiastics who followed their countrymen Fearghus Mor and his brothers into Scotland when Fearghus was elected and crowned king of that country, about the year 500. It was he and his followers who for this occasion carried the famous *Lia-fail*, or 'Stone of Destiny' (more properly the 'Stone of the King') with them from Ireland to serve at his coronation. On the Round Tower of Brechin is the figure of Saint John the

Baptist holding a lamb in his arms and a cup in his hand. Ledwich, in his work on Irish Antiquities, gives a good lithograph illustration of the doorway of this tower with these figures on the wall. The meaning of these figures is to convey a representation of the baptism of Jesus Christ by St. John in the Jordan, as it is recorded in the Gospel." [See John i., 28, 29.]

Our author has had to travel outside our island to find an example to suit his theory. The figures on the Brechin tower, in his opinion, place the object for which the tower was erected beyond all doubt, and he thinks that Ledwich had in his hands "the silken clue to the origin and use of that tower at Brechin, if he had been sufficiently acquainted with the ecclesiastical history of the early ages of christianity; but in his ardour for polemical warfare, Ledwich was always looking out for horrors and monsters in that direction."

Ledwich, indeed, thought he knew more of Irish history, ecclesiastical and otherwise, than any of his predecessors or contemporaries; and it is worth while referring to Ledwich's work and his remarks on the two towers in Scotland, if it were only for a contrast with the opinion of the Rev. Mr. Smiddy. Our latter author is wrong in speaking of the "good lithograph illustration" in Ledwich's book. Lithography was not in use for book illustration till many years after Ledwich published his work. The art was only introduced into England in 1801. The invention was due to a German, Alois Sennefelder, who practised it about 1795, and introduced it into Germany two or three years after. Ledwich's work on Irish Antiquities was first published some years earlier. The Rev. Mr. Smiddy furnishes a description of the Round Tower of Keneigh, near Bandon, in the County Cork. He thinks he sees in the hexagonal form of this tower further proof of his theory. We shall give an extract for the purpose of doing full justice to his views:—"Keneigh Tower has also another feature worth remarking. It is the original floor, at the door, over the lowest compartment, which contained the baptismal font. In most other towers this is wanting, as, very likely, it consisted of timber or boards resting on joists and covering the whole space, having, however, a hole or opening in it to allow an entrance to the compartment below. In the Keneigh Tower this floor consists of large flag-stones inserted in the side walls, and extending from them so far as to cover the whole space over the lowest compartment, leaving, however, a hole or opening in the centre of the floor, about three feet in diameter. That was the entrance to the underneath apartment, the place for baptism."

A curious place indeed for the ceremony of baptism, and an odd contrivance to boot, supposing it to be used for the purpose described. It is a pity our author did not illustrate the constructive details of this Keneigh Tower, as it would help us to better understand his singular descriptions. We would recommend those interested to read our author's graphic account of the ceremonies of baptism, as supposed to be performed at Keneigh Tower or baptistery, and elsewhere in the early ages of the Church in Ireland, as given at page 112 and succeeding pages of his work. It cannot offend our reverend and talented author if we say that the description given is more ideal than real, and that the tower, or reed-house as he calls it, was unfitted for the purpose he has assigned to it. In a word we cannot or do not believe that our Round Towers were constructed for baptisteries, and whatever architects or builders designed them for that purpose, they deserve very little credit on the score of outward design or inward arrangement. These towers were entirely unsuited for the meeting of the number of persons, or for the services described by our reverend author, and on moral or sanitary grounds alone in all ages under such conditions as our author details they would be voted a nuisance.

Although we dissent from the views propounded by the Rev. Mr. Smiddy, we can cheerfully bear testimony to the interest possessed by his work as a whole, and to the earnestness and the enthusiasm displayed in his method of argument. In these days, to have an undiluted love for your country, theme, and the language of your forefathers, is a something to be proud of, and to have scholarly ability and to use it with the best intentions, is to do labour that must be recognised at one time or another. We can all agree to differ, and in the matter of the origin and uses of our Round Towers, we all may well differ. Mr. Smiddy has brought to his task great enthusiasm, and he scarcely could help to dogmatise. His warmth has led him to build up a theory which *per se* would be admissible, but the materials of its construction are out of all harmony with the object itself. To one unacquainted with the history of the past, and of our ancient architecture as a portion of that history, the theory might look very plausible on paper; but to a practical mind the construction of the Round Towers of Ireland, from base to summit, external and internal, disprove that they could ever have been erected for baptisteries. Any structure large enough could of course be utilised for baptismal or any other christian service; and, as we repeated more than once, there is little doubt but the Round Towers in this country, in various places, have been appropriated and used as adjuncts to ecclesiastical buildings, churches, and monasteries, and used for more than one purpose in connection.

We could have greatly extended our remarks upon the Round Tower portion of our subject, and in citation of the opinions of others, but it is not necessary. We may add, however, that the works of Vallancy, Mr. and Mrs. Hall's "Ireland," and Mr. Windele's Notices of Cork, may be consulted for opinions concerning the fire-worshipping and sepulchral theories regarding our pillar towers. Our national bard, Thomas Moore, too, in his history, ventured an opinion. India and the Caucasus have their representative towers and pagodas; and Sardinia, said to be colonised by Iberians, has numerous structures under the name of *nuraghi*, between which and the Irish Round Towers certain resemblances are traced. Captain S. Pasfield Oliver's lately-published little volume, "Nuraghi Sardi," &c., may be usefully consulted on this head. The future student of Irish history, whatever theory he adopts, is certain of having materials to support his views. Of these varied opinions we have given a pretty exhaustive exposition, and with none on either side in all details do we wholly agree. How strange—yea, indeed, it is passing strange!—yet it is so.

It may be asked, What is *our* theory? In reply, we have to say we have no distinct theory to propound. We believe they were built in so-called Pagan times, and we are inclined to think for purposes of worship, and used perhaps as watch towers as well. As places of defence, or to flee to for safety, they could afford very little protection, except in a state of society very primitive indeed. The builders of these towers, whoever they were, could erect far better and more impregnable fortresses. Their erection is certainly not coeval with our Christian churches, but must have long preceded them. Since they first lifted their cone-capped heads in Irish skies, many centuries must have elapsed, and many hundreds of them must have perished firstly by the hand of man, and afterwards by the action of the elements. They are sure to give rise to new theories while one shattered fabric remains; and the students, antiquaries, archaeologists, and architects of the twentieth and succeeding centuries, are as likely to be as interested in their mystery as any of the numerous band of historians and essayists who have agitated the wave of native opinion since the days of Giraldus Cambrensis down to the unknown writer of these articles.

## DRINKING FOUNTAINS.

UNDER the presidency of the Duke of Westminster, the annual meeting of the Metropolitan Drinking Fountains Association was held at Willis's Rooms on Monday last. Mr. John Lee, F.R.G.S., read the report, which stated that in the last twelve months the committee had established no fewer than 16 large cattle troughs and 21 drinking fountains, with dog troughs attached. They had also taken over and repaired, and in some cases taken down and reconstructed, 8 cattle-troughs and 24 fountains, which had been put up by private benevolence. The total number of erections at present was as follows:—276 fountains and 72 large cattle troughs, besides 199 small troughs for dogs and sheep, the fountains extending over an area of more than 300 square miles. For the first time in the history of the society the fountains had been kept running all through the winter, and it was found that a very large number of animals availed themselves of the water supplied them. The noble chairman having briefly addressed the meeting, Cardinal Manning moved the adoption of the report, which was seconded by the Hon. A. Kinnaird, supported by Mr. S. Morley, M.P., and Sir T. F. Buxton, and carried unanimously.

Need we point out how far deficient Dublin is in the provision of these useful and necessary public requirements? Ornamental and cleanly kept public fountains for men, no more than cattle, are scarcely to be met with in this city. In the last century in Dublin we had a few good fountains, but these have either been removed long years since or allowed to go into ruin.

## LAW.

### COURT OF EXCHEQUER.

*Carson v. Dublin and Chapelizod Distillery Company.*—Action by Mr. E. H. Carson, C.E. to recover £1,350 8s. 6d., for services rendered as architect and valuator in connection with the conversion of flax-mills at Chapelizod into premises suitable for a distillery. Mr. Sergeant Armstrong opened the case for plaintiff, and stated that a vast sum had been spent in the erection of the mills by Mr. Dargan. After his death the mills were worked by Mr. Hoey, who realised a large fortune. In the early part of the year 1873 Mr. Hoey, retiring from the business, disposed of the premises to Mr. Alleyn. Mr. Alleyn subsequently disposed of his interest to the defendants, whose company was registered under the Company's Acts on the 22nd September, 1873. Mr. Carson was employed to prepare plans and specifications for the alterations and additions. After these alterations and additions had been effected, Mr. Carson was also employed to value the premises. The amount of his valuation was £177,133. After the case had proceeded some length, Mr. Exham, Q.C., announced that an arrangement had been made between the parties, on the terms that the sum of £780 should be paid to plaintiff by defendants in full for debt and costs, and that a juror should be withdrawn.

### QUEEN'S BENCH.

*Joseph v. Martin.*—Action by Mr. Joseph, proprietor of the Northumberland Hotel, against Messrs. John Martin and Son, to recover damages for alleged injuries to his hotel, occasioned by the noise of machinery at defendants' saw-mills. At a former trial the jury found for defendants, and after motion for a new trial the case stood for judgment. The Lord Chief Justice pronounced the decision of the court, to the effect that a new trial should be granted, but he expressed a hope that the case would be settled. Only there had been a preponderance of evidence that for a period of three months a nuisance did exist, the court would not disturb the verdict.

## ART NEEDLEWORK AND ART EDUCATION.

In these machine days, when efforts are being made to transfer the execution of art work as well as handicraft to the manipulation of steel hands and fingers driven by steam or some other motive power, it is refreshing to observe any earnest attempts in maintaining the human manipulation of the fingers in the production of any high-class work requiring skill and dexterity, and which is likely to prove remunerative. Needlework for many years has been wretchedly paid work, though we remember the time when mere plain workers in this city earned good wages. The introduction of the sewing machine has revolutionised needlework in nearly all of its branches—fine and coarse tailors, shoemakers, harness-makers, sack-makers, portmanteau-makers, and several other trades, as well as dress-makers and other fancy milliners—now use the sewing machine with ease to their fingers, backs, and eyes; but the use of the sewing machine is not proving as remunerative to the workers as might be anticipated. At the first introduction of the machine, before its use had become so general as it is now, remunerative prices were obtained for young ladies' labour, but now machine needlework is, on the whole, but poorly paid, except in a few special instances. Tapestry and ornamental embroidery still supply a field for superior talent, and a clever designer of patterns may still carve a name and a handsome competence. A century or two ago ladies in the upper walks of life or in the middle ranks executed splendid and enduring specimens of needlework, wholly executed by the toilsome process of hand sewing; but young ladies then generally learned how to sew and occasionally to cook well, for it was an age of sewing and not reading or playing the piano. It would be well still if the daughters of our middle-class parents, as also those of our working classes, practised both hand and machine needlework a little more. The existence of our Schools of Art in many of our chief towns and cities afford great facilities now for the acquiring of art knowledge in many branches, and of its direct application in the production of many articles of clothing and household ornamentation. There is now in London a "Royal School of Art Needlework," and there is no reason why we should not have similar schools in this country. Some commendable attempts have been made in this city, our readers are aware, in creating and providing a centre for the utilisation of female talent by the establishment of a "Female School of Art." We hope to see this praiseworthy effort better appreciated and maintained.

On Tuesday, the 22nd ultimo, at South Kensington, in the Belgian Annexe, in the presence of a large and brilliant assemblage, Her Royal Highness the Princess Christian opened the new School of Art Needlework. The school looks promising, and more accommodation is required. It has been removed from its old premises in Sloane-street to the present building in the Exhibition-road. There are four apartments—a drawing-room, where the designers work, and where the drawings are made and copied, and worked with the material. This is then taken to the general workroom, where all sorts of work is done, with the exception of applique work, which is performed in a third room. The fourth room is a store-room, where the materials are packed and kept. Mr. F. Leighton, R.A., Mr. Val Prinsep, R.A., and Mr. Boddeley, architect, kindly give the students any artistic advice they may require, gratuitously. In her address the Princess Christian, among other pertinent remarks, observed:—"I particularly desire to see among the staff and lady workers a sense of pride and interest in their occupation. I want to see a ready, cheerful co-operation among all those employed. I would willingly not speak of myself, but this much I wish to tell you, that many are the anxious hours I have passed, and shall still have to pass, before I see it worthy to be called the 'Queen's School.'

My mother has now given us her name as patron, and this is another inducement to work incessantly towards our high object—the revival of a nearly lost and most beautiful art of decoration, the details of which must be entrusted to women, as to them the occupation is not irksome or unnatural. If the desire which has been created, and which is increasing, for more beautiful and artistic needlework should obtain even a larger influence over the wealthy classes of this rich country than at present, there is no saying how much good may not result from it to the great mass of unemployed women in England. The council have had anxious moments to go through. They have been liberally supported, but they cannot count exclusively on extraneous aid, and it is therefore to the staff of workers that they look for hearty and intelligent support in future, if the school is to remain in existence and fulfil the objects for which it was established. I am sure I only express the feelings of all the members of the council when I say how truly they wish you to look upon them individually as friends who have your truest interests at heart, none more so than our vice-president, who has been my right hand in all things, and who has never shunned fatigue or anxiety of mind in time of our greatest need. And now I wish you God-speed, and beg you to believe how my heart goes with you in this our great work."

Lady Moran Alfred, who takes great interest in the experiment, gave a most interesting and cheering review of matters in connection, and as we are always ready to assist in such commendable undertakings, we publish with pleasure the main points of her address:—"The idea of reviving secular needlework for domestic decoration was suggested in conversation between two friends in the autumn of 1872. One, whom I will not name, had the courage to break ground alone. The few who knew and appreciated what she was undertaking soon turned their sympathy into action, and, with the fostering aid of the Royal lady who does us the honour to preside over us, the scheme took form, and the framework of the present society was gradually developed, so quickly that in three years we have outgrown our habitation. Our aim has been from the first to restore needlework to its place as an art. We had to begin by teaching ourselves. The struggle was a hard one. An interest in the project had to be created, and a market for our work found. Some of our difficulties lay in the catholic and universal nature of our attempts. We tried to work in Gothic Renaissance, Plutarch, and Moorish, Elizabethan, Jacobean, and even Georgian styles, Henry II., Louis XIV., Louis XV., Louis XVI., all distinct, and requiring each a life-long study. The exhibition of the needlework of all ages at the Kensington Museum in 1872 did much to inform us as to what had been and could be done. First we saw the types of barbarous ornamentation from Central and Southern Africa and America. In other countries early types go on repeating themselves, as in Abyssinia and Coomassie to the present day, without ever approaching the beautiful. We have no fragments of classical embroideries, and our earliest European specimens have come out of the shadow of the dark ages, and are of the ninth and tenth centuries. They are all ecclesiastical, and, with one or two exceptions, all ugly. The age of chivalry was the age of needlework. In all times it has been the consolation of the wife pining at home for her lord at the war. Talfourd understood this when he makes Clemanthe, in bidding adieu to Ion, say it will be her solace in his absence—

"To weave, with that nice labour that retains  
The rebel pulses, even from gay threads,  
Faint record of thy deeds."

The art of needlework has had its great moments and its revivals, born of the requirements of luxurious ages. When some woman of genius rose from the plodding circle of commonplace stitches, and was an artist, she became the founder of a new style. Undoubtedly the greatest teachers of embroi-

dery have been the Persian, Indian, and Moorish schools. These influenced the Italians in their design and colouring; and there is another, the Mongolian school—very clever and inimitable in their own way, but far inferior to the first-named, in splendour of colour, power of composition, and combination, and in that simplicity with effectiveness which is sometimes the highest of all art. Turning to our own school, which has much to learn, and happily does not lack means of instruction, we may say our desire is to please our public and educate its taste and our own at the same time, by accepting and working from the best models we can obtain, ancient or modern. We wish to adorn and improve, by harmonious decoration, rooms already designed in a particular style, to combine conflicting colours with uniting elements, and thus give to the eye that chastened delight which all beauty, tempered by fitness, bestows. We also seek to cheer and improve the homes of those less rich in the gifts of fortune, with refined tastes and a feeling for beauty, by giving them a lovely and loveable occupation—one that we hope will be as handsomely remunerated as skilled art-work ought to be. Our workers are educated and refined, our staff clever and well trained, our friends and patrons helpful and confiding. We have men of genius and critical acumen to advise us, a president whose kindness, zeal, and devotion cannot be surpassed; we have the Queen for a patron, and by God's blessing we will succeed."

To our Irish ladies we would say, Go and do likewise, and an impetus may be given to the glorious but lingering trades which still shed a halo over the once prosperous but now forlorn Liberties of Dublin.

## DROGHEDA—SUGGESTED PORT AND HARBOUR IMPROVEMENTS.

THE Boyne Commissioners and the Drogheda Corporation are nearly "one sack one sample"; and, as far as talking and doing little more is concerned, they deserve to be pilloried with our own Corporation in Dublin. The same endless resolves and counter-resolves, reports and amended reports, lawyers' opinions and engineers' opinions have been resorted to, and, whether bad, good, or indifferent, still the Boyne Commissioners, their comrades, and the Dublin Corporation remain unsatisfied. Mr. B. B. Stoney's advice was sought some months ago by the commissioners—some of the soft souls believing that our eminent engineer would suggest a remedy for the ills to which the port and harbour of Drogheda is heir to—a remedy which would cost the commissioners little or nothing. They were dissatisfied with all former reports—even the one of their own worthy engineer was not valued at its worth—so Mr. Stoney's report, or rather his estimate, for work needful to be done, takes them by surprise. Some of the commissioners are of opinion that they are as wise now as they were previously, and we may venture to add they seem to be as wise as ever they are likely to be, as wisdom does not appear indigenous to their natures.

We give portion of Mr. Stoney's report. He says:—

The training walls on either side of the river channel are, for the most part, in a very efficient condition, and reflect great credit on your engineer, Mr. McMartin, who appears to have made the most of the limited means at his disposal for maintaining the navigable channel of the river. There are three matters, however, which do not come within the scope of ordinary maintenance, but which are capable, with a moderate expenditure of capital, of being much improved. These are—1. The present system of dredging. 2. The extension of the south breakwater at the mouth of the river. 3. The removal of the sharp bends at New Deep and the Mussel-bed, and, though of less importance, at Beaulieu Point.

After making some suggestions as to the method of dredging, and as to certain additions required in connection with the dredging plant, Mr. Stoney proceeds to say:—



Respecting the breakwater on the South Ball, I would recommend that the low part for the last few hundred feet near the end be raised to its original height, and that it be extended seaward about 800 feet, taking care to make the extension in a straight line and in the same direction as at present. This breakwater should be constructed with the soundest and largest stone procurable, and for this purpose I would recommend the commissioners if they can lease suitable quarry land at Stameen at a reasonable rate, to do so; but if they are unable to procure stone from this or some other quarry above high water, then it will be worth while to seek for stone on the reclaimed land east of the Viaduct. The chief objection to the latter position being the risk of finding much water, which would involve expensive pumping, a matter which is of minor importance when a large quantity of stone is quarried in a very short space of time, but which renders quarrying very expensive when prolonged over a considerable period, or when a quarry is worked in an intermittent manner. On the whole, and considering all the circumstances of the case, I would recommend the quarry at Stameen if it can be obtained at a reasonable rate, or if the right to quarry stone there can be purchased at a moderate royalty. The third matter I have alluded to is the reduction of the abrupt bends at Beaulieu, New Deep, and the Mussel-bed, the last two especially, as that at Beaulieu is of minor importance and may wait on the others. In order to supplement the dredging and carry out these improvements more rapidly, I would recommend that much of the excavation above low water be executed by barrow work, or by banking into the spare ponds, taking good care that the excavated material be wheeled far back at New Deep behind the proposed line of wall shown on Mr. Ure's plan, and which the improved channel may ultimately reach (though at present I do not propose aiming at so extensive an improvement), and at the Mussel-bed considerably above high water, or else punted and wheeled behind the line of training walls elsewhere. Possibly the proprietor of the land inside the Mussel-bed would not object to the inequalities of the ground being levelled up with the excavated material. In connection with this subject I may allude to a very natural desire which frequently exists to reclaim and cultivate, or otherwise utilise slob lands. When these, by the natural action of silting, have been raised above ordinary high water level, then their complete embankment or further elevation by artificial means is often legitimate; but this process of reclamation should always be regarded with jealousy, for it should never be forgotten that the back water of a tidal river, including the water flowing over slob lands, is the principal means by which the depth of the river channel, and especially that of the bar, is maintained, and disastrous results have sometimes followed from a too eager desire to reclaim what were apparently useless slob lands, but which were really reservoirs of tidal water. The estimate of foregoing works is:—Improvement of steam dredger, and construction of one new steam hopper barge, £3,400; extension of south breakwater, £4,150; removal of banks at New Deep and the Mussel-bed, £5,100; contingencies, 10 per cent., £1,266; total, £13,926—say £14,000 in round numbers, the whole of which, however, will not be required probably for three or four years.

Mr. Stoney's estimate is far more economical than preceding ones, and we consider his report on the whole satisfactory—we do not mean to the majority of the commissioners. If the board cannot raise £13,000 or £14,000, or a little less, the work cannot, of course, be executed, and it is doubtful indeed, considering their present burdens, if the money can be raised. If the commissioners would be advised, they ought at once give up their chronic wind blasts and driftless schemes, and set about doing something practicable with the means at their disposal. It would appear, according to the view of some of the commissioners, that every "handy man" in Drogheda is a practical man, but it is by indulging for long years in "Jack-of-all-trades" experiments that the town, port, and harbour of Drogheda are indebted to their present condition.

Mr. Stoney's remarks about the utilisation of the slob land by reclamation, with the distinction he draws between natural silting and the artificial filling up, are entitled to consideration. The commissioners having now obtained the coveted report which they have long sought, will dilly-dally and dance around it, and when they are sick of meeting, and adjourning, and discussing on the head

of this report, they will resolve upon having another *de novo*, perhaps the next time from Sir Joseph Bazalgette, or some brand-new handy-man to whom nothing comes amiss from putting a cross upon a spade to mending or driving a dredger.

#### BOOKS RECEIVED.

*Public Works in Ireland—Forty-third Report of the Commissioners. With Appendices. 1874-75.* Dublin: Alexander Thom.

We must postpone a digest of this Report until our next issue, together with some observations suggested by a consideration of the varied and important matters contained. Connected with public buildings, harbours, drainage, farm and labourers' dwellings, loans and sanctions for improvements, there is a large amount of information to be gleaned having an important bearing upon the social and general prosperity of the country. We will endeavour to turn this Report into some useful account for all who care to profit by a study of the questions discussed.

#### Quarterly Return of the Registrar-General.

THIS Return contains, from a social and sanitary point of view, a pretty fair reflex of the state of the country and the health of the people. The District "Registrars' Notes" are eminently useful for the accurate information they supply of the sanitary state of various towns throughout the four provinces. We will devote a paper in our next issue to a summary of the chief matters of interest embraced. If there be an epidemic wave passing over any portion of Ireland, these Returns ought to enable us to trace the undulation, and obtain fresh data for the science of human health.

"English Country Houses," by William Wilkinson, architect; London and Oxford, Parker and Co., 2nd edition.—"Journal of the Royal Historical and Archaeological Association of Ireland" for January 1875.—"Studies in Design" (part 8), by Dr. Dresser. Messrs. Cassell, Petter and Galpin.—"The Irish Ecclesiastical Record" for June. W. B. Kelly.—"The Druids, Ancient Churches, and Round Towers of Ireland," by Rev. R. Smiddy. W. B. Kelly.—"Nuragghi Sardi, and other Non-Historic Structures of the Mediterranean Basin," by Captain S. Pasfield Oliver. Carson Brothers.

#### NEW MASONIC HALL, PARSONSTOWN.

THIS new hall has been dedicated and opened during last month. It is for the use of the brethren of St. Brendon's Lodge, 168. According to the local papers, some eight months since the committee obtained possession of a house in William-street, and having removed the top floor and all the partitions, found at their disposal a room which measured about 31 ft. long by 17 wide, and 15 high to the braces of the roof. They then instructed Mr. A. B. Milne, C.E., to prepare plans for its conversion into a hall suitable for the meeting of their ancient order, and under his direction and superintendence the various works have been carried out. Throughout the whole there has been an endeavour to keep to the mediæval spirit which caused all work to exhibit its construction, and to make the constructive features ornamental—not to hide any work or material, but to let it tell its own story of its quality and use. All the exposed woodwork, as the ribs, consoles, pilasters, door and door-case, are simply stained and varnished, thus showing out the natural grain and beauties of the timber, while machine mouldings stuck on, and all imitations of any kind have been carefully avoided.

Under the supervision of Mr. B. J. Sheppard, the Secretary of the Building Com-

mittee, the Masonic details were carried out. The ribs, consoles, and entire gasfitting and heating arrangements were supplied by Messrs. Wallace and Co., of Wilmer-road; Messrs. Brooks, Thomas and Co., Dublin, executed the painting and decorating, attended to by Mr. Morris; and the carpentry and joinery, inclusive of benches and chairs, was the work of Messrs. Carroll and Dillon, all of which, we are informed, was satisfactorily executed.

#### THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

On Wednesday, the 28rd ult., the annual *soirée* of the Royal Institute of British Architects took place at the rooms in Conduit-street. The visitors were received by Sir Gilbert Scott, the president, and there was a large attendance. The rooms exhibited on their walls a good display of objects of pictorial and decorative art of various classes connected with architecture. Specimens of artistic pottery were contributed by Messrs. Minton, and there were some excellent specimens of glass work representative of the art of Salviati. There were also some good drawings in water colour of architectural subjects, and embroidery designs intended for church "restoration" work. A selection of music and suitable refreshments and cooling drinks were provided, and everything passed off agreeably among the architects and their brethren and visitors, among whom were a number of ladies, who were entertained with a gossip more preferable than the state of "the five Orders" or the condition of the profession.

#### PUBLIC RECORDS IN IRELAND.

THE Seventh Report of the Deputy-Keeper of the Public Records in Ireland has been for some weeks issued. The present writer may not say whether the IRISH BUILDER is indebted to the courtesy of the Secretary of the Public Records or to the pocket of the proprietor of this journal for the copy which lies before him. It matters little, however; for in either case the criticism will be as just, as far as he is concerned, when he comes to speak in detail of the materials of the present Report. All that time and space can afford at present is the giving of but little more than an enumeration of the contents page. The Report, which we shall notice hereafter, is supplemented by an Appendix of considerable value, containing—Present Places of Custody of the Common Law Judgment Rolls; Extract from Report of Henry Berry, Esq., on the Removal of the Records of the High Court of Admiralty; ditto, Report of James H. Davies, Esq., on the Removal of the Records of the Revenue and Equity Exchequer; Note of Removal of Residue of Records of Law Exchequer; Copy Order of the Lords Commissioners of the Great Seal, dated 4th July, 1874; Extract from Report of Henry Cox, Esq., on the Removal of the Records of the Court of Chancery from Offices of J. J. Murphy, Esq., formerly Master in Chancery; Report of Sir J. Bernard Burke, Ulster, Keeper of State Papers; Extract from Minutes of Trustees for the Encouragement of Linen Manufactures in Ireland; Particulars of Increment received from Court of Chancery in 1874; Calendar of "Fiants" of Hen. VIII., with Index, and Preliminary Remarks, by J. J. D. LaTouche, Esq., the Assistant Deputy-Keeper. The portion of the Appendix occupied by the "Fiants" and the Preliminary Observations extend from page 27 to 87, and in a historical point of view they are the more important and interesting portion of the Appendix. We will have something to say about this portion of the work anon. In the work of the removal, depositing, indexing, and calendaring, the Deputy-Keeper and his staff are making rapid advances, and, considering the varied nature of the work, it is one of no small difficulty.

## MIDDLE ABBEY-STREET, AND ITS IMPROVEMENTS.

MESSRS. W. H. SMITH AND SON'S NEW BUILDINGS.

GREAT Abbey-street, as delineated upon Rocque's Map of Dublin, 1778 (now Middle Abbey-street), was once a place of very considerable importance. The name Abbey-street is evidently derived from its contiguity to the site of the suppressed monastery of St. Mary's Abbey; and, at the period of which we write, this street was exclusively occupied by wholesale merchants, of whom by far the larger portion were in the wine trade. This the extensive stores and vaults still existing afford sufficient proof of.

Lower Sackville-street did not then exist; the ground it now occupies was covered by miserable shanties (if we may use an American term) and yards, extending to the water's edge, or to where Carlisle Bridge now stands; and there was no way westward to the river at this point except by a lane, still existing, which brings you out by an archway from the then Great Abbey-street to Bachelor's-walk. Great Abbey-street at this period was a leading thoroughfare from both the south and west of Dublin to the North Wall, and to the northern suburbs. The route from the south lay over Essex Bridge, and thence by Great Abbey-street to Drogheda-street and the Mall (now Upper Sackville-street), or by the Ship Buildings (now Lower Abbey-street), to the North Wall, as the Bachelor's-walk quay, where it approached the site of the present Lower Sackville-street, was a *cul de sac*, excepting the lane leading into Great Abbey-street, as we have mentioned above. The widening of Drogheda-street, and the formation of Lower Sackville-street by the Wide Streets Commissioners towards the close of the last century, and in addition the building of Carlisle Bridge, ought to have given an impetus to the further progress of this street; but, on the contrary, it had the opposite effect. By the building of Carlisle Bridge, and the formation of Lower Sackville-street, the stream of traffic was first diverted, and afterwards by the opening of Moland-street, now Talbot-street. For a time Great Abbey-street struggled to keep up appearances, and for years tried it on; but, ceasing to be a leading thoroughfare, it was obliged to give up in the long run, and for years afterwards it presented a dingy, melancholy, and dilapidated look, seeming as if mourning over its former respectability. The wine trade was continued and continues partially still; but the Great Abbey-street of former days was then no longer what it once had been.

Streets, like nations, are occasionally revolutionised. Now about 40 years ago, by the enterprise of Alexander Thom, a Dublin citizen, a Scotchman by descent, Middle Abbey-street was roused from its dormant state in the establishment of his printing offices there, which have since assumed such gigantic proportion. He was soon followed by others in different manufacturing and wholesale trades; yet it remained for the firm of W. H. Smith and Son, the eminent London publishers, to create it a business emporium second to none in Dublin; and this, through the indefatigable exertions of their manager, Mr. Charles Eason. In the years 1866-67, Messrs. W. H. Smith and Son re-built the houses Nos. 85 and 86 Middle Abbey-street, and removed their wholesale bookselling and newspaper business from Lower Sackville-street to these premises. But their daily developing trade demanding largely increased accommodation, has compelled them recently to purchase the houses Nos. 79 and 80 as auxiliaries to their present extensive business establishment.

With this number we give an illustration of the front elevation of their re-building. No. 80 is now approaching completion, and shews what will be repeated in duplicate when 79 is complete. The design is by Mr. Alfred G. Jones, and exhibits novel and marked architectural features of picturesque character,

unusual in buildings devoted to mercantile pursuit. The works are entrusted to the builder of the firm, Mr. William Hughes.

The façade is composed of piers of Dalkey granite with intermediate supports formed by cast-iron pilasters of exceedingly light and graceful outline. No brick has been used in this portion of the works, if we except the upper panelling or corona, which is built of brick and moulded in Portland cement, with dressings and cappings of Dalkey granite. The interspaces under window opes are filled in with Portland cement concrete in lozenge-shaped ornamentation. The windows are all casement sashes with segmental curtained heads, to be glazed with plate glass.

The interior construction consists of piers of chamfered white firebrick, built in Portland cement, upon which the girders, formed with I-shaped rolled-iron flitches, encased in beams of memel timber, supporting the different floors, rest.

An entirely new material, at least so far as Dublin street architecture is concerned, has been introduced by the architect for covering the roofs—we mean the *Vielle Montagne* Co.'s zinc, of Italian pattern. It is laid over rounds, and presents a pleasing appearance in comparison with the ordinary slate roof. Where the picturesque is desirable, as in suburban buildings, we would be glad to see it used. In villa architecture it would form a valuable adjunct for the production of effect.

## CIVIC LYRICS.—No. LXXXVIII.

THE MEETING OF THE MAYORS, 1875.

(Strictly private and confidential.)

Said the London Lord Mayor,  
"My dear Mac, I've heard  
That you've strong faith in prayer;  
In that cause I've shared.  
But I don't see your reason  
For praying alone,  
And of giving a season  
To Dirt over Stone."

Said the Dublin Lord Mayor,  
"My dear Stone, I would  
Subscribe to your prayer  
In removing the mud;  
But the truth I can't utter,  
Although it's well known  
That we live by the gutter  
And die by the stone!"

When the confab was over,  
Mac pulled out a cork,  
And toasted each rover  
From London and York;  
And with animal spirits  
And others, I ween,  
The guests saw that our merits  
And country were green!"

CIVIL.

## MEMORIAL TO THE LATE REV.

WM. MCCLURE, DERRY.

THE congregation of the First Presbyterian Church, Derry, have erected a mural tablet in the vestibule of the church to the memory of their late pastor. The tablet is large, being over eight feet high, and is designed to harmonise with the Classic features of the edifice. Various marbles are introduced. Carved and moulded brackets of white marble, with panel between, support a base of Sicilian marble. Above this is a large plate, with a raised panel of white marble thereon, bearing the inscription of the name and date of birth, death, and period of pastorate of deceased, which was for a space of nearly half a century in connection with the congregation. White marble trusses carry the cornice, which is also moulded in Sicilian marble at its base. Above this stands a raised blocking of the same material, on which are carved trusses of white marble supporting a raised centre, with the crest of deceased engraved thereon, having a moulded scroll round, with bands connecting the trusses. The upper portion is finished with an urn, carved in white marble. The whole is set on a background of Belgian black

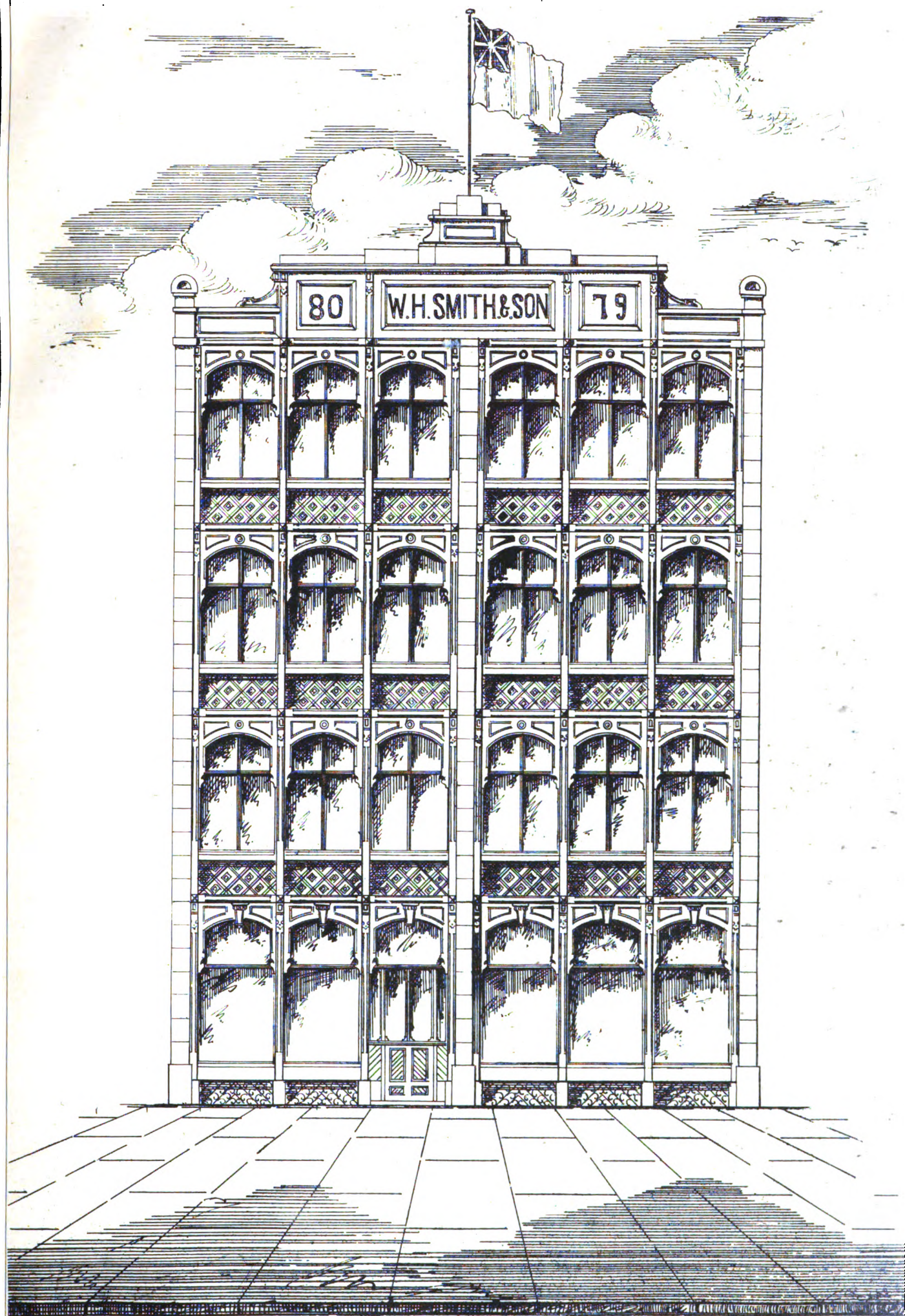
marble, shaped to the outline of the memorial. All the plain surfaces of the marbles are highly polished. The work has been executed by Mr. Robert Kell, sculptor, from a design by Mr. William M'Etwee, architect, both of Derry.

## ART IN DUBLIN.

It will be seen by the list of those students who are to receive the medals of the International Exhibition what decided progress is being made by the pupils in the Royal Dublin Society's School of Art. The medals will be distributed in December next. The works presented to the London International Exhibition of 1874 were the best works of the kind that have yet been produced in this country, and it is not an exaggeration to say that they were not surpassed by any similar work in the exhibition. This fact indeed tells a good deal in favour of the admirable system of art instruction carried out for some years back in the Royal Dublin Society's Schools under the present able head master, Mr. R. Edwin Lyne, M.R.I.A., and his efficient assistants. A great need still exists in connection with our chief school of art in this country—viz., an Art Museum, suitable for ready reference. It is to be hoped that more than one of our Irish members will move in the matter, and, if possible, before the end of the present session, succeed in getting some satisfactory assurance from the Government that the provision of an Art Museum for the use of the students of the Dublin Schools of Art will be considered. The grant towards institutional and art purposes in this country is miserably small; and, considering the great benefits that the nation will derive by extended art instruction throughout the kingdom in the interest of trade and manufacture, the Government might well and freely consent to enlarge our facilities. The London and the Provincial Schools in connection with South Kensington have their every want supplied. East no more than west of London has little now to complain of on the head of Art galleries. It certainly is not fair that a city like Dublin—which always, even under the most unfavourable circumstances, at all times gave evidence of her inherent art impulses—should continue to remain unprovided with an Art Museum.

A Parliamentary return, obtained on the motion of Mr. Sullivan, contains (says the *Express*) some interesting particulars respecting the proportionate expenditure in each part of the United Kingdom upon the promotion of science and art. They bear upon the project of establishing a distinct and independent branch of the South Kensington Museum in Dublin. Since 1852 there has been an increase in the amount granted by Parliament for this object, which fitly represents the greater importance attached to this branch of educational improvement. In 1852, the grant for England was £19,516; last year it was £168,586 10s. For Scotland the grant in the former year was £1,600. Last year it was £22,464. For Ireland the grant in the former year was £1,696 10s. Last year it was £30,176. The total amount of grants for England for the period extending between 1852 and 1874 inclusive was £1,787,988; for Scotland it was £186,324, and for Ireland £440,337. It will be seen that in this matter Scotland and Ireland have a common interest, and may





W. H. SMITH & SON.  
MIDDLE ABBEY ST. DUBLIN.

★ G. JONES ARCHITECT  
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make common cause—and the question as to the distribution of the grants, if an opportunity be offered for raising it, will probably lead to an important discussion.

### THE PUBLIC HEALTH BILL.

On the second reading of this Bill, in the House of Lords, on Monday, the Duke of Richmond made some explanatory remarks, which it will not be amiss to quote here, particularly as we commented at some length upon the measure when first introduced. The Duke observed that it was not to be taken as a permanent settlement of sanitary legislation, or else the Government might be open to criticism elsewhere, on the ground that they had not redeemed the pledges which they had given to use all their efforts to deal with sanitary questions generally. The real intention of the Bill was to amend and consolidate the present laws, and, although it consisted of no fewer than 340 clauses, it was not of so gigantic a character as might be supposed. The noble duke, in order to explain the position in which the Government found themselves with regard to a consolidation of the statutes, called the attention of their lordships to the various Acts which were now in force upon the subject. The number of Acts which now existed was more than twenty, ranging over a period of thirty years, and the confusion in constructing the law had been so great that it had become absolutely necessary that some attempt should be made to reconcile those Acts one with another. The chief amendments had been divided into ten heads. It was proposed to vest the control of sewers in the local authorities; to give power to carry water mains beyond the districts underground; to incorporate the water clauses; to limit the supply of water; to suppress offensive trades where they were injurious to health; to allow urban authorities to purchase gas-water by agreement, under special arrangements named in the Bill; to sanction legal proceedings against the joint contributors of nuisances; and to permit local boards to combine for the appointment of proper medical officers of health. The Bill was, in all respects, a first and necessary step to those great sanitary reforms which were proposed to be introduced in process of time.

### CORK LUNATIC ASYLUM PLANS.

As the dispute between the Board and the architect, with which the engineer's name is mixed up very much, is still in process of evolution, and tending to exhibit new results, we shall not say anything that would be likely to disturb the waters. We hope, however, the Board are, by the time we are writing this, reconsidering their position, and resolving to do strict justice as between the architect and the engineer.

### PUBLIC WORK IN OUR TOWNSHIPS.

The annual meeting of the commissioners of our outlying townships ushers in reports, from which can be gleaned what is being done in the way of public work and improvements.

From the report of the Rathmines and Rathgar township, we hear that the board have been in negotiation with the Local Government Board for a loan under the Sanitary Act, but nothing has yet been done. They have hesitated to make the extra charges for water referred to in the last report, although there is very little (if any) improvement as to waste, and the quantity now supplied to the ratepayers is over 40 gallons per head per day, many ratepayers using more water than their entire rate would suffice to pay for. The present state of the income makes it imperative that additional funds should be obtained from some quarter, and it seems quite just that those who use such excessive quantities of

water should pay for it. As the ratepayers are aware, the other townships have now to pay for all water used in excess of 20 gallons, and in some of them an intermittent supply has been resorted to. The entire cost of the Rathmines Waterworks does not, even with the recent expenditure, exceed about 25s. per head—a very low figure, indeed; and the average cost of maintenance for 13 years, including interest, rent, new mains, and all expenses, has been only 2½d. in the pound, and for the last two years about 4d. The increase of valuation is trifling (only £694), building being almost at a stand-still. On the other hand, the increase of county charges is large and continuous, the year being £207 in excess of last. A sum of about £800 has been expended on asphalt. Two important and much-needed works of sewerage in Upper Mountpleasant-avenue and Harold's-cross have been executed at a cost of about £400, and nearly completes the system of sewers. The Public Health Act having come into force, regular meetings of the board as a sanitary committee have been held, and much improvement in the condition of some parts of the township has been effected by their instrumentality.

From the annual report of the Pembroke we learn that the total receipts for the year 1874 amounted to £9,451 19s. 9d.; that the expenditure included £1,066 17s. 4d. for repairs at the Rock-road; £1,923 5s. 8d. for the maintenance of other roads; £724 for the lighting of 316 lamps; £2,006 18s. 2d. on the water-works department; and £461 11s. 2d. outlay for special purposes, of which £49 had been received from private parties. The balance to credit amounted to £2,281 17s. 9d., but was subject to outstanding liabilities. From the neglected condition of the Rock-road, the commissioners had, until a recent date, withheld the payment of the first moiety of the county warrant for 1874, in the hope that by their so doing the county grand jury would see the necessity for enforcing the contract for the maintenance of that leading thoroughfare, for which they were solely liable. The work of laying down one side of the footways of the leading thoroughfares in the township with the Limmer rock asphalt had been commenced, and was progressing satisfactorily. The commissioners had successfully opposed the Dublin and Wicklow Railway Company's Bill so far as it affected the interests of the township, and also the Land Reclamation Bill; but the latter had been opposed entirely at the expense of the Earl of Pembroke. During the past year the valuation of the township had risen from £78,519 to £79,115.

At the meeting of the Pembroke Commissioners, Mr. Molloy inquired the cause of the increase of taxation during the past year. The chairman and Mr. Robinson explained that it was due to an assessment of over £200 on the township for the Floating Hospital and other sanitary matters; to an increase of £500 in the assessment for water; to the cost of the work of asphaltting the pathways in the township, which was now being carried out; and also to the cost of new sewerage, and of the Parliamentary opposition to the late bill of the Dublin and Wicklow Railway, in relation to the valuation of their line. Mr. Green said he had no doubt that every penny laid out in asphaltting the pathways would tend to increase the value of property in the township. He had heard of several instances of persons who were anxious to live in the township if it were not for the bad state of the pathways. He wished to know when the pathways of the Waterloo-road would be asphalted. Dr. Wright said these were among the next that would be attended to. The chairman said they could not do all at once. They would come to Waterloo-road in about a month. In reply to Mr. Molloy, the secretary stated that the foreshores of the Dodder would be cleansed and scoured this season as usual.

We must say, as a matter of fact, that our Township Commissioners perform their duties in a more orderly and efficient manner than does the larger all-talkative City Corporation.

### AN APOLOGY FOR DIRT.

WHAT follows is taken from the report of the proceedings of the Corporation. It is sufficiently explanatory in itself—at least for Irish readers—so we shall not add in this place a word of comment:—

Mr. John Byrne, T.C., said he wished to call attention to a matter of some importance. When one person institutes an unfounded prosecution against another and failed, he was generally made the defendant in an action for his malicious proceeding. The Corporation, it seemed to him, were called upon to act in reference to a recent proceeding against them. For years they had paid out of the corporate funds crossing sweepers to keep the crossings clean. No such payment was made by the Corporation of London. In that city the crossings were kept clean by the sweepers who were paid by the passengers, and if they did not pay they often met black looks and abusive words. Upon a certain day last winter—a day exceptionally disagreeable—a sudden thaw came on after a heavy frost. The crossing sweepers in the neighbourhood of the Four Courts had to sweep up the mud to enable those who had business at the courts to get there, and some of the mud thus swept up had to remain in the street near a stationer's shop close to the courts till it was carried off next morning by one of the seventy-four scavenging carts in the service of the Corporation. The two-shilling rate enabled the Corporation to keep but seventy-four carts and seventy-four horses. That supply was sufficient for ordinary occasions—it was wholly insufficient for extraordinary occasions; and it was well the public should know that to cope with the extraordinary demands which some gentlemen would make, 365 carts and horses would be needed, and the rate to be paid, instead of being 2s. would be 5s. 6d. or 6s. The gentleman who kept the stationer's shop was summoned for not sweeping the flagway in front of his establishment, the law imposing upon him, not upon the Corporation, the duty of sweeping the flags, and he did not do it, and the magistrate imposed a fine of 2s. 6d. Sir John Barrington, T.C., was summoned at the same time for a similar omission, and he was fined, not 2s. 6d. but 40s., and the reason given was that Sir John was a member of the Corporation. He (Mr. Byrne) had yet to learn that the statute made any difference in relation to the status of the individual, and he did not hesitate to say that it was a whim, and a most unbecoming whim, of the magistrate to fine one man 40s. because he was a member of the town council, while he fined an ordinary person 2s. 6d. The gentleman so fined, thinking that the Corporation ought to be compelled to do with seventy-four horses the work of 365 horses, instituted a proceeding before the magistrates, and had the Lord Mayor and Corporation sent for trial at the Commission. At the Commission he appeared by attorney, and asked for permission to send up a bill of indictment against the Lord Mayor and Corporation for a nuisance. That permission was given without the Lord Mayor—who was a member of the court, who was named in the Commission first, the two judges coming next—being consulted. Though the Lord Mayor was present on the bench, he was never asked a question; but an indiscreet speech was made to the grand jury, in which they were told, however high his position, he was not above the reach of common law. That was scant courtesy to the Lord Mayor—a member of the court who had as good a right as either of the judges to address the grand jury. Well, the bill was sent up. The grand jury heard the evidence, and they ignored the bill. They could do nothing else. There was no evidence of anything that the common law could take any cognizance of as an offence or impropriety by either the Lord Mayor or the Corporation. They were sworn to find a true bill according to the evidence, and they found no bill on the evidence, adding an observation about the narrow escape of the Corporation. Now, that was quite a gratuitous assault upon the Corporation. Either the Corporation was guilty or not guilty. If guilty, the bill should be found; if not guilty, the bill should be ignored. It was ignored; therefore, the Corporation were guiltless, and the remark upon their narrow escape was wholly unbecoming and undignified. But the promoter or promoters of these proceedings against the Corporation had evidently gone upon insufficient evidence, and they had endeavoured, but vainly, to incriminate that assembly. The parties should, in his opinion, be dealt with, and he therefore moved:—“That the matter be referred to the law agent, with directions to inquire and report as to whether the Corporation, individually or collectively, can have an action for damages against any of the persons concerned in this malicious prosecution.”

Oh, yes! Oh, yes! Oh, yes!

## CONCERNING CARLISLE BRIDGE.

THE bridge that James Gandon designed and superintended at a period when he was embellishing our city with public buildings that constitute our architectural wealth, is doomed to pass away, or to be otherwise so metamorphosed that its architect would not recognise his work were he to re-visit the scene of his proudest public services. As the work of George Semple, our self-taught native architect, has been treated, so likely is that of our great adopted one. We have had three Essex Bridges preceding the recent one built upon Semple's foundation; but as yet we have had but one Carlisle Bridge, so that the site and associations of the former, as a matter of time, are more historic than the latter, though scarcely invested with more compressed national interest, considering the period of Gandon's labours. Matters of historic interest, however, have to give way to ones of public utility; and, though we may regret the removal of old land-marks or buildings linked to golden memories, we are consoled with the thought that public improvement must be always an advantage when rightly conceived and properly carried out.

The proposed enlargement of Carlisle Bridge has been long years before the public, and different plans, our readers are aware, have been submitted for the purpose. Many advocate a new bridge on the site of the present, and others, among which we count ourselves, are in favour of a new bridge further down the river. We have so often and so recently discussed the question of the *pros* and *cons* of Carlisle Bridge, improved or re-built, we feel it unnecessary to dilate upon the matter at present.

The question of a new or enlarged bridge was again before a special meeting of the Corporation last week, when the following correspondence was read, being the reports of Mr. B. B. Stoney, the able engineer of the Port and Docks Board:—

1st June, 1875.

SIR,—In compliance with the board's instructions, I beg to submit the following report in the letter of the Corporation of the 26th ult., respecting the improvement and widening of Carlisle Bridge, so that its width may correspond with that of Sackville-street. The cost of completing the new bridge of the width proposed, and suitable to the locality, will be about £74,000, and the estimate will probably not be very materially altered. Whether one or three arches are adopted, for though a light class of work may be used in the three-arch bridge, the saving in this respect will probably be counterbalanced by its requiring double the number of coffer-dams as well as additional masonry in the river piers. The present bridge, with ordinary precautions, may last for a long time if not injudiciously interfered with, but it is not easy to predict what the effect of making deep excavations and pumping for the foundations of substantially two new bridges, one on either side, may be on the foundation of the present bridge; and in order to utilise the latter one with security, it would be prudent, after taking down the present arches, to enclose their foundations within the coffer-dams of the new work, so as to examine and underpin the former where necessary, and unite them to the new work, and after this was done another one, or possibly two, temporary bridges added. The economy of the patchwork bridge seems very doubtful, indeed. Moreover, the public would necessarily suffer very great inconvenience during the progress of the work, owing to the interruption to the straight lines of traffic. It is true the present bridge could be lowered, and a comparatively cheap structure on piles or cylinders added on either side, but the effect would be very distasteful and totally unsuited to the locality.—I am, your obedient servant,

B. B. STONEY.

15th June, 1875.

SIR,—In compliance with their instructions, I beg leave to lay before the board the following report on the two proposed plans of lowering and widening Carlisle Bridge. In my last report on Carlisle Bridge, I stated reasons for supposing that the cost of lowering the present bridge, and increasing the width to that of Sackville-street by bridges on either side of the present structure, so as to form an improved and widened bridge suitable to the locality as proposed by the Corporation, will not materially differ from that of completing a new bridge. It is unnecessary, therefore, to trouble the

board again with the reasons, but merely state that I estimate its cost at £74,000, and the difficulty of its construction, or indeed that of any three-arched or two-arched bridge, would be greatly increased if the drainage works are carried out. The cost of lowering the present bridge, and adding an additional twenty feet on either side of it, so as to throw the present footpaths into the carriage-way, will, including temporary accommodation, probably cost from £28,000 to £30,000, and its difficulty will also be greatly increased by the works of the main drainage. Indeed, I do not at present see how cylinders can satisfactorily be used along with the drainage syphons, and, of course, the architectural effect of cylinders would be open to much adverse criticism.—I am, your obedient servant,

B. B. STONEY.

Mr. Stoney's report does not, of course, satisfy certain members of the Corporation who are never satisfied unless they can ride their own hobby. Mr. Geoghegan's plan, proposed some years ago, was alluded to by one of the members, who considered it preferable on the score of economy and beauty. Mr. Stoney indicates pretty clearly the difficulties likely to be encountered in carrying out the work of enlargement, and we are not aware that, in the plan proposed by Mr. Geoghegan, the matters mentioned in Mr. Stoney's report as to foundations and main drainage appliances were considered. If not, of course it alters the case considerably. We would not like to see a mere patch-work structure at the cost of £28,000; neither do we go in for a lavish expenditure for a new bridge, knowing that another bridge further down the river must eventually be constructed. The present roadway of Carlisle Bridge can be lowered, and rendered more serviceable for vehicular and passenger traffic; but the widening of the bridge, and throwing its present footways into the roadway, necessitates a large amount of work, and wholesale change in the architecture of Gandon's structure. If no resolve is come to about the erection of an additional bridge lower down the river, then we say Carlisle Bridge should at once be re-built on a scale to harmonise with its approaches.

## ANENT THE PROPOSED UNION OF ARCHITECTURAL SOCIETIES.

OWING to want of time we were obliged to defer further comment in our last issue respecting the proposed union of architectural bodies. Since our article of the 1st ult. each day added strength to our conviction that the union proposed was not only unwise as mischievous, but that it would be a most suicidal policy to adopt on the part of not only provincial societies but also of London ones working apart, though working in the same interest as the Royal Institute of British Architects. The correspondence we annex—the outcome of the whole deliberations of the committee of the Architectural Association of London, gives a quietus for the present to the mischievous movement; but we have reason to believe that other efforts will be made from time to time to carry out in some shape the centralizing policy.

In the face of the correspondence which we print we do not think it necessary now to discuss the other bearings of the subject as indicated in our article of the 1st of June. In a general way we said then what we thought it was needful to say and what we felt reluctant to say, but the occasion demanded it at our hands. Friendly co-operation and intercommunication between architectural bodies, a closer bond of amity, as we before remarked, is wanted in the interest of the profession, but the proposed union could never effect it. Not only would the affiliation be disastrous to architectural organisation in the chief towns and cities, but it would eventually be a damper upon architectural life and literature in London in a variety of ways. The union, instead of doing a benefit to architecture as a whole, would work it a lasting injury, and would weaken the usefulness of the British Institute instead of in-

creasing it. The Architectural Association of London is to be commended for its decisions, and we must say it is only what we anticipated upon the part of that body, which has evidenced so much energy for some years past, besides performing valuable labour. We trust the chief provincial bodies will not let the occurrence pass without registering their opinions anent the late move designed to swallow them wholesale, and establish a monopoly of architectural representation for the three kingdoms upon the banks of the Thames.

Mr. S. Flint Clarkson (the hon. secretary of the Architectural Association) read the correspondence, which we give, at the meeting of the body held upon the 11th ult. :—

"11th June, 1875.

"The question of the possibility or advantage of a fusion between the Royal Institute of British Architects and this Association was brought under the notice of the committee, when they were informed that the special committee on the affairs of the Institute had appointed a sub-committee to confer with a sub-committee of the Association on the subject. A sub-committee of members of the Association was accordingly appointed, and the sub-committee have met and conferred.

The following report, dealing with the questions referred to them by the committee, has been furnished by the sub-committee. In submitting it to the members of the Association, the committee desire to express their general approval of its contents, and to state that they wish to co-operate with the Institute in every possible way, keeping clear of any attempt to rival that body. It will always be their endeavour to induce the senior members of the Association to become members of the Institute."

"To the Committee of the Architectural Association.

4th June, 1875.

Gentlemen,—We beg to report the result of our consideration on the subjects referred to us by the committee in the resolution of the 16th April, 1875.

1st. With reference to the suggested fusion of the Royal Institute of British Architects and the Association.

We have taken into consideration the scheme suggested by Mr. T. Chatfield Clarke, which has been already reported to the committee of the Association, and it does not appear to us such a fusion would be either desirable or possible. We consider that it would imperil the usefulness of the Association, owing to the control under which its work would be carried on, and so radical a change in its constitution might paralyse its energy for years. We cannot recommend the members to part with their present independence of action, in which we recognise one of the means by which the Association has attained such great success.

We are fully aware of the advantage that would be gained by a joint and unanimous action of the whole profession in securing and maintaining professional status, awarding honours, promoting education, and accumulating the results of study and experience; but such united action does not at present appear possible, and it is unnecessary to speculate as to the future.

2nd. With reference to the question referred to us, 'whether a scheme on the basis of co-operation rather than fusion is worthy of consideration.'

We are of opinion that there is no desire on the part of the Association to stand apart from any action by the profession or the Institute in which the Association can render any assistance; nor do we anticipate any such disposition in the future. The relation between the two societies is quite free from any antagonism or rivalry. Still, as each Society has, and should keep to, its special sphere of action, co-operation could only take place in such matters as:—(A) An interchange of invitations, by which members of either society would be at liberty to attend lectures or other general meetings of both societies; and, occasionally, joint meetings of the two societies might be held for the discussion of suitable subjects; (B) the abandonment by the Institute of its class of students, the Association being recognised in the place of the same, and assisted by such influence and privileges as the Institute can give to it; (C) the joint use of the libraries by the members of both societies,—that of the Institute for reference, and that of the Association for circulation, with such arrangements as would secure the extension and best use of each; (D) joint action on the part of the two societies in order to obtain a better system as to awarding prizes.

Other similar modes of co-operation might be suggested, which could be carried out without affecting the independent existence of either society; but any attempt to obtain an official connexion

between the two societies would not materially assist either, whilst there might be danger of the less powerful being injuriously controlled, or of a collision of opinions or interests.—We are, gentlemen, yours faithfully,

(Signed) GEORGE H. BIRCH,  
JOHN S. QUILTER,  
BOWES A. PAICE,  
S. FLINT CLARKSON,  
EDWARD G. HAYES."

### CORK.

#### A WEEK'S SANITARY WORK, AND ITS COST.

At the meeting of the Towns Improvement Department on the 18th ult., Mr. Kenealy reported that the duties performed by their sanitary staff during the past week had been: 965 houses and yards examined; 74 persons noticed to cleanse their premises, 8 houses (containing 85 rooms) and one yard of sick poor, limewashed and disinfected; 10 beds destroyed, and new straw supplied; 11 lanes limewashed, 86 lanes washed with hose and brush, viz., 4 lanes washed six times, 1 four times, 14 three times, 81 twice, and 86 once, at a cost of £10 11s. 4d. Twenty persons summoned, seven for collecting and keeping manure in their yards, two for keeping pigs in close proximity to dwelling house; two for having filthy out-houses; one for keeping a horse in his drawing-room—dwelling-house he meant; seven for having filthy yards. Magistrates' orders to abate and discontinue, with 2s. costs, were granted in each of the above cases, except one adjourned for a week, one for depositing nuisance in Curtilane, fined 1s. with 1s. 6d. costs. Mr. Gould asked was that a hobby-horse that had been kept in the house? Mr. Kenealy explained that the owner was a gingle driver. The chairman then said—There is no other business, gentlemen; and we have had no clap-trap speeches to-day.

### CORRESPONDENCE.

#### THE DOMINION OF CANADA

##### AS A BETTER FIELD FOR THE EMIGRANT THAN THE UNITED STATES.

#### TO THE EDITOR OF THE IRISH BUILDER.

SIR,—As our fellow-countrymen and countrywomen will leave our shores notwithstanding the increasing prosperity of Ireland, a few remarks on the advantages Canada possesses over the United States may be not out of place. I can safely recommend this country (Canada) as a betterfield for skilled and unskilled labourers and artisans than the United States, having spent seven or eight years of a busy life in public works in both countries. The following are my reasons:—The enlargement of the St. Lawrence Canals from Lake Erie at Willand to the St. Lawrence at Montreal is progressing. The resumption of the N. S. Railway (Quebec to Montreal direct), with which I was connected as chief engineer, is also in progress, and the Great Pacific Railway, over 3,000 miles in length, is likewise "up and doing." In these latitudes persons shudder at the thought of a Canadian winter. The winters in Canada, though severe, are tempered with a dry elastic atmosphere, not such as the damp, unwholesome one of these islands. I worked with my staff of fourteen engineers, in '59, under canvas, the thermometer most of the time 15° to 30° below zero. Occasionally, after a night's fall of snow, we used to have to dig ourselves out next morning. There were none of the party—who were to a man acclimatised Canadians—bore the cold better than myself.

The climate of Canada West is mostly free from the rigour and severity of the eastern province. The winters are much like those of England or Scotland. There is little or no sleighing or skating, and only septennially or so are the rivers frozen over.

It is to the district called the *Red River Settlement* and the Taskatchewan country *par excellence* I would fain say a few words to the intending emigrant or artisan. This is the elysium of the Dominion. Here the land "blossoms as the rose," and here the virgin soil requires only the spade or plough to turn it up, when it yields not only one but two hundred-fold. Deer, as fat as prime Meath Ewes, roam unmolested through the park-like forest-glades. The buffalo is occasionally met with, as well as the harmless brown bear. The prairie-hen, partridge, and wood-cock remain throughout the

year in these silent, solitary, and salubrious regions. The intense blue and red birds are seen in the woods, and the tiny humming-bird may be seen twittering from sprig to sprig. Wild pigeons and wild turkeys are indigenous to this remote region. This is truly a country worth fostering and caring for, where Scotch and English settlers would have a wider field for their energy and labour than squatting down on a small patch of reclaimed moor-land or bog in the kingdom of Connaught!

The public works going on at present in the Dominion of Canada have attracted many labourers and artisans from the United States. Even the engineer of home growth with an *European reputation* has to work his way up-hill, finding it no easy task to "get inside" his rival from the United States. J. N. GILDEA, C.E.

26th June, 1875.

#### THE SALE OF A CITY BASIN.

##### TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I beg leave, through the columns of the *IRISH BUILDER*, to ask the attention of the over-taxed ratepayers of the city to this matter.

Without submitting—as in the case of the sale of all other Corporate property—the lot to public competition, the Waterworks Committee have accepted, and the Council has sanctioned, the offer of Messrs. Jameson and Son of £3,000 as purchase-money for the Blessington-street Basin. The transaction is awkwardly suggestive.

Is not the Chairman of the Waterworks Committee and the head of the firm, "Messrs. Jameson and Son," one and the same person? Has not the objection made by the Dictator of the Corporation to the purchaser getting "*free use of the water*," a flavour of that candid hypocrisy which is calculated to impress on outsiders a belief that this sale is all correct—that candid hypocrisy with which the deputations from the United Trades' Society, the Mechanics' Institute, and the Citizens' Committee (headed by their Chairman, Sir William Wilde) were regaled by the Corporation when they waited on them in the City Hall, on the 14th July, 1873, and presented a memorial for the conversion of this basin into an enclosed public bath, surrounded with pleasure-grounds, the like of which, if the project were carried out, would not be found in connection with any city in the world?

This basin is now consigned by the Corporation (the majority of whom are traders in strong liquors, or who make money by the improvidence and misery consequent on the use of them) at a "fancy price" to assist in the manufacture of whiskey, &c., without any seeming cognizance of the valuable materials originally employed in its construction. It has been estimated by thoroughly competent authorities that the cut and other stones, and the flagging of which this basin is constructed, together with the walls with which it is enclosed, are of full value for £8,000, and that the fee-simple of the ground would be cheap at £3,000. On a close calculation it has also been ascertained that by building on the space occupied by this basin a similar class of houses to those already in Blessington-street, a sum of £800 per annum would be produced by the rating on such houses.

At a late meeting of the Dublin Sanitary Association, Mr. W. F. Lawlor, T.C., endeavoured to excuse the Corporation for their neglect of sanitary matters, on the grounds of want of money. It is not to be expected that money could be to their credit for any requisite purpose when such sacrifice is made of their property, and when we recollect the payment of about £1,500 during the half year ending January 5th last, for a bulk of gas said to have been consumed in the public lamps, *that was not consumed*—the wanton increase of salaries to already over-paid officials—the reckless law expenses, and many other matters that never come under public notice.

JAMES KIRBY.

41 Cuffe-street, 28th June, 1875.

#### SLATERS' AND PLASTERERS' WORK.

##### TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In the next issue of your very useful publication will you kindly give instructions for the measurement and allowances, with the prices, of slaters' work and plasterers' work (workmanship only, the price here being 5s. per square for slating), viz.—the allowance for eaves; cutting hips and valleys; patent slips on hips; setting plain ridge tiles; ditto, ornamental; mortar step flushings; cement flushings; slate fillet, and flushing over it; laying lead in valleys and gutters. Is there an allowance made for the extra work in cutting the last course of slates next the ridge tile, &c.? In measuring plasterers' work, are allowances to be made for all the angles on the door-jamba, windows, exterior angles and interior angles of recesses, and

angles of rooms—all the angles of coved ceilings? If so, what price per running foot or yard? How are circular soffits of arches to be measured? Plaster soffits of doors and windows, jamba of ditto? The allowances for mitres in mouldings?

A WORKMAN AND SUBSCRIBER.

[Our correspondent will, we think, find all the information he requires in "Spon's Architects', Builders', and Contractors' Prices and Memoranda."]

#### SANITARY AND OTHER NOTES.

THE sanitary condition of the city in respect to the river and streets is still in a deplorable state. The city, in fact, is scarcely scavenged at all, though the citizens are being bled to death with the weight of increasing taxation. To point out the localities full of dirt and obstructions, would be only to tell an oft-told tale.

BRAY.—At a late meeting of the Rathdown Guardians, the subject of some alleged farm-yard nuisances was discussed, but no action was taken on the head of cases reported. The chairman read a correspondence on the subject of the right of the guardians to take water from a local stream in forming the contemplated water supply for Grey-stones and Delgany. A minute was passed empowering the clerk to procure the agreement of the landowners holding this right to the appropriation of the stream in question for the purpose stated. The clerk was directed to inform a landed proprietor that the transfer of the sanitary control of the Ballybrack township did not interfere in reducing his rating to one-fourth under the Towns' Improvement Act, as he required.

BLACKROCK.—At a meeting of the commissioners, a letter was read from the secretary to the railway company, stating that Mr. Gray had waited on the directors in reference to the People's Park, and their engineer having given his opinion that the construction of a new culvert under the railway line would be attended with risk, the directors regretted that they cannot carry out the suggestion. They believe that the existing culvert can be made available without interfering with the railway bank. Mr. Magrath expressed his regret that the work of spreading the clay on the park was not going on. The chairman said the feeling of the board was against proceeding with that work at present, as they had no funds for the purpose. Mr. Alma observed that until they had finally completed their arrangements with the railway company they could not call on Mr. Vernon for the £1,500 promised by the Earl of Pembroke. The chairman, in reply to Mr. Leetch, said the commissioners had now a perfectly good legal title to the park. The chairman stated that his attention had been called by two or three residents in Montpelier-terrace to the state of the pathway there, and moved that the surveyor, Mr. Barnes, be requested to report to the board on the subject. In respect to bathing accommodation, on the motion of Mr. Robinson, the secretary was directed to write to Mr. Maunsell, the secretary of the Dublin and Wicklow Railway, asking for a written permission for the board to erect a stile at the railway wall, close to Booters-town station, for the accommodation of poor female bathers.

KINGSTOWN.—The commissioners are contracting a loan for the sum of £10,000, to be allocated for certain necessary improvements in connection with the old town.

KILKENNY.—At a sanitary meeting of the Corporation, the question of erecting another new pump for the use of the bakers at Green Bridge was decided. The town is in want of several sanitary requirements in respect to drainage. Alderman Kealy observed that, if the Government had let them alone, they would have got on well enough, and if money was allowed to accumulate, it was badly required for two great purposes, namely, the widening of the streets at the shambles and Water-gate. Another gentleman suggested that the last great improvement that took place in Kilkenny, was when Bull-alley was widened, during the Mayoralty of Alderman Power. The Mayor then announced that a cart, with a bell attached, should go round the town every day, to collect manure, &c., from such persons as had no accommodation attached to their houses; but on no account was anything to be thrown into the streets, but everything kept till the arrival of the cart.

DEBBY.—The town council here are beginning to move in the matter of an effective water supply, and have been in communication with Messrs. D. and J. Stevenson, engineers, Edinburgh, upon the subject. Some of the members of the council advo-

cated a consultation with house authorities upon the subject. After a long discussion the following resolution was agreed to:—"That upon the recommendation of the special committee appointed to select a competent engineer to examine the reservoirs for the purpose of ascertaining the best means of increasing the water supply, Messrs. D. and J. Stevenson be employed for this purpose, according to the terms stated in their letter to the Town Clerk, dated 16th June, 1875, and that the City Surveyor be directed to make a preliminary examination of the reservoirs, and prepare such queries, to be submitted to the Messrs. Stevenson, as he may think necessary, such queries to be laid before the Police and Markets' Committee for approval."

**LIMERICK.**—The corporation of this town, sitting in committee, have, after a lengthened conference as to the proposal of Mr. Somerville, of Dublin, to manage their gas works on receiving one half profits, rejected the proposal. They also rejected a proposal from the United General Gas Company, after which Town Councillor Quina proposed that Mr. Spillane, J.P. and T.C. be appointed manager, at a salary of £300 yearly, with full control of works. This met unanimous approval. We suppose that Mr. Spillane will at once resign his seat in the corporation. We doubt if his appointment is legal, being made before his resignation.

**THE SEWERAGE OF NAAS.**—The committee appointed by the guardians of the Naas Union to consider the state of the sewers of that town, and Mr. J. H. Brett's report thereon, state as their opinion:—"That the sewers in the town of Naas cannot be made available for a proper and improved system of drainage. They were evidently constructed to carry away the surface water from the streets and the roofs of the houses. Had they been used for those purposes only, they might have answered very well; but persons were allowed to run sewers communicating with water-closets into them, and they have become in some places more like cess-pools than sewers. We are of opinion that it will be necessary to construct new sewers, and provide a supply of water to flush them. We recommend the board to direct Mr. Brett to report to them what he considers the best system of sewerage to adopt; in what manner water could be raised to a proper level to flush the sewers; where would be the best point to convey the sewage to; what would be the best manner to dispose of the sewage matter; and an approximate estimate of the probable cost of the work. When the board are in possession of the above information, they would be in a position to decide whether they would direct Mr. Brett to prepare plans, specifications, and estimates." The board ordered that Mr. Brett be requested to carry out the suggestions of the committee, and report to the board of guardians. At a previous meeting of the guardians and town commissioners, Mr. Brett said:—"If the guardians asked him to make a plan, he was thinking the sewage might be discharged into the canal, between the gaol and the North Moat. The question was whether they would deodorize and filter or use the sewage for irrigation. It was strange there was no objection to the manner in which the sewage was at present discharged into the canal. The canal was the water supply for Rathmines and Rathgar. However, he thought there was more alarm about sewage poisoning water than was necessary. For instance, some time ago the discharge of some sewage at Newbridge into the Liffey was objected to, but there was such a great quantity of water flowing through the Liffey, the sewage discharged into it at Newbridge would be infinitesimal."

#### A TRUE TOUCH "STONE."

At the banquet given at the Mansion House on Tuesday evening in honour of the American Rifle Team, the Lord Mayor of London (Alderman Stone) in responding to the toast of "the health of the Lord Mayor and Sheriffs of London," took occasion to observe that he "reciprocated all those kind feelings which had been expressed" by the proposer of the toast. "The Lord Mayor of Dublin he regarded as a Municipal brother, and he (the Lord Mayor of London) simply represented a municipality, in which capacity he had nothing whatever to do with anything which savoured of politics or polemics. In London [the big village!] they entirely excluded politics from municipal affairs. It might be said that they were so well off in London that they had no necessity to be introducing politics. He considered that in all other parts of the three Kingdoms they equally

enjoyed that prosperity of which London was admittedly the great centre." We hope the hints given by "the chief magistrate of a city remarkable for great events," and whose citizens are proud of "the liberty and happiness" they possess, will be pondered over by our "Municipal Sixty."

#### THE ARTISANS' AND LABOURERS DWELLINGS IMPROVEMENT ACT.

THIS important measure, which we commented upon recently, has passed through the House of Lords, and is now the law of the land. It applies to this country as well as the sister kingdom, and we have no doubt, if wisely utilised, it will lead to considerable benefit. On the occasion of the third reading, an alteration was made in connection with the power given by clause 12 to the "confirming authority," to "permit the local authority to modify any part of an improvement scheme authorised by the Confirming Act, which it may appear inexpedient to carry into execution in accordance with such Act." The proviso was introduced by Lord Redesdale, and it will be found very useful under certain circumstances. The settlement of claims for compensation is still left with an arbitrator, to be chosen by the confirming authority, with power to appeal to a jury by either party when the amount exceeds £500. We hope, before this time twelvemonth, to see some good practical results through the action of this long-needed piece of sanitary legislation.

"The Employers' and Workmen's Bill" was read a second time, without a division, on Monday night, and the committee for the Bill fixed for next Monday.

In the House of Lords, the Public Records (Ireland) Act, 1867, Amendment Bill was read a second time.

#### FROM INDIA— WORKMEN, FACTORIES, AND PUBLIC BUILDINGS IN BOMBAY.

A CORRESPONDENT writing from Bombay in a temperature of 90° sends an interesting description of "Characteristics of Bombay," from which we take some extracts which may not be without interest to a portion of our readers:—

**RECREATION AND WORK.**—As soon as the hours of five in the afternoon strikes and the westerling sun begins to flame less fiercely, offices are closed, and crowds stream forth to gardens and to sea shore to enjoy the cooler air. A score or two of Europeans and hundreds of Parsees and others are playing cricket. Bevy of women and girls in the brightest colours pass by. Handsome carriages dash along with Indian merchant princes coming from their business haunts to their pleasant villas by the sea or bosomed high in tufted trees. There is a merry chattering in every group, a fair is going on, with swings, and merry-go-rounds, and as in England, at first sight one would say that *sua si bona norint* the Bombay people ought to be the happiest in the world. There are signs, too, of a material prosperity which, though unsightly to the eye, will be hailed by the statesman and philanthropist with real satisfaction. At Kolabat, and among the gardens of Bycullah, Girgaum, and Parell rise gigantic chimneys, which tell that the spirit of Manchester has been transferred to the East. There are 18 cotton spinning and weaving mills in the island of Bombay, and one, the largest of all, at Koorla, close by in Salsette. This last has, or is to have, 107,852 spindles, and will employ 2,500 hands. I have not yet had time to visit it, but I presume it has nothing special beyond its size. I have visited the one which was founded about twelve years ago by Sir Mangaldás Náthaboy, and which is perhaps the best worked of all. Sir Mangaldás has sold his shares in it, but while he held them, at all events, nothing could

exceed the prudence with which the mill, which is called the Bombay United Mill, was worked. I believe it is the only mill where there is a school, and Sir Mangaldás paid for this out of his own pocket. There is also a fire brigade, to which part of one of the buildings is given up, but I am afraid it is not maintained so carefully as at first. The mill is at Girgaum. There are 21,000 spindles and 625 hands are employed, of whom 80 are women, and about 50 boys. The work goes on from daylight to dark all the year round, but some mills close on Sundays, others on two Sundays in the month. From 12 to 12:30 is allowed for the meal, which suffices for these frugal and abstemious working people, but the children spend this in play, and get a few minutes to eat at some other time. There are 11,078 men, women, and children employed in the whole island, or including the Koorla Mill 13,578. The rooms are lofty and well ventilated. The pay is exceedingly good, ranging from 5 rupees, which is what some of the throstle boys get, to 48 rupees, which is earned by loom jobbers. In general, the working people are well satisfied. Strikes have occurred, and the Bombay factory hands will not be imposed upon any more than their brethren in the West. But there is no disposition to treat them ill, and then they are so frugal and temperate and contented. Grievances consist in withholding some holiday on account of a pressure of work, and it has been said that reductions in pay are sometimes made in the case of the younger hands; but that soon cures itself, for there is an easy remedy in going to another mill, and new mills are being opened from time to time. The greatest drawback is that the homes of the operatives are very often at a distance, and time is wasted and fatigue incurred in going to and fro. Blocks of rooms to accommodate the hands, erected near the mills, would be the greatest boon possible. There has been a proposal to supply them with food on the premises and to have purveyors for them; but that would probably lead to the evils of the truck system, and really their alimentary wants are so small that it were best to leave them to provide for themselves what they require. In such a thriving state of things is there any occasion for a factory act? That is exactly the question which is now agitating Bombay. No doubt it looks statesmanlike and philanthropic to pass factory acts; and if it could be done with the entire concurrence of the native millowners, by all means let an act be passed. But this new industry is the thing of all things that India wants; it is but a foundling at present, and care must be taken not to strangle it with ill-judged kindness. The natives have the same objection to compulsion that Falstaff had, and it is a fact that wealthy people will order their carriages, and drive miles to avoid complying with the commonest rule of sanitation. At present it is certain that the passing of an act is viewed with great apprehension, and there is also alarm lest Manchester should succeed in sweeping away the import duties. Probably the wisest course would be to have a report drawn indicating the point on which legislation would be desirable, such as the limit of age at which children should be employed, certain restrictions as regards women when *enceinte*, hours of work for children, covered places for the hands to take their meals in, protection from machinery, days of closing, and increased allowance of time for meals and for retiring home, and then to suspend legislation until it should be seen what could be done on these points by an agreement amongst the mill owners.

**PUBLIC BUILDINGS.**—Passing south from the crowded quarters which occupy the more central part of the island, and getting on to the instep as it were of the fantastic foot which bounds Back Bay to the east, and divides it from the harbour, you come to the charming Esplanade, and along the eastern border of this extend the public offices. Just to the north of them is a very beautiful statue of the Queen, which is admirably



placed, looking northward along the great thoroughfare of Esplanade-road. If one must be critical I would say the statue should have been elevated some 10 or 15 feet, or even more, with a flight of steps on either hand leading up to it. But as it is the effect is very good. Pass south now along the public offices, which succeed one another in the following order—the Telegraph Office, the Post Office, the Office of Public Works, the Courts of Judicature, the University, the Convocation Hall of the University, the Secretariat, which includes the council chambers. It must be confessed that on entering the harbour the back view of those buildings is not imposing. One is astonished on reaching the Esplanade and approaching them closely, to see what noble edifices they are, and how admirably the details are finished. The Courts of Justice are still in a very unfinished state, and it will take two years to complete them, but the effect then, with a central tower 170 ft. high, will be very striking indeed. The total cost of these works I understand to be £504,000, and never was so large a sum so well laid out. There are other beautiful public buildings in other parts of Bombay Island, such as the Elphinstone College, the Elphinstone High School, but which have been erected by the munificence of distinguished inhabitants, such as Sir Albert David Sassoon, and Mr. Gokaldas Tejpal. It would perhaps be not incorrect to estimate the whole sum expended by the Government and by patriotic citizens at three-quarters of a million, and I am doubtful if we should have attained equal results for three times that sum in London. The Telegraph Office was designed by Mr. Paris. It is in the modern Gothic style, has three floors, and is 182 ft. long, by 55 ft. broad. The facing is of coursed rubble stone from Koorla, in Salsette, and the columns are of blue basalt. The ground floor is paved with Minton tiles. The Post Office likewise has three floors, and is 242 ft. in length, and 71 ft. in breadth, with wings on the north 41 ft. broad. It is in the mediæval style, and designed by Mr. Trubshawe. The stone used is the same as that of the Telegraph Office. Nothing can exceed the convenience of the arrangement, and gigantic brass plates give the most detailed information as to the business carried on in each compartment. I only wish the English public offices were one half as full of guiding notices and explicit directions. The Public Works Office is 288½ ft. long, 50½ ft. broad, and the highest point of the roof is 116 ft. The centre is six storeys, and the other part three storeys. The Courts of Judicature are 562 ft. long, and 187 ft. broad. The height to the eaves is 90 ft., and to the top of the tower 174 ft. The library of the University and clock tower are unfinished. The building is 170½ ft. long, by 126½ ft. broad, and the clock tower, in which will be a peal of bells, will be 250 ft. high. The design is by Mr. Gilbert Scott, who also designed the Senate Hall, a very pearl of buildings. The style is decorated early French of the fifteenth century. The hall is 104 ft. long, 44 ft. broad, and 63 ft. high to the apex of the groined ceiling, with a semicircular apse of 38 ft. diameter, separated from the hall by a grand arch. The front corridor is 11 ft., the side corridors 8 ft. broad. A gallery 8 ft. broad, on beautifully cast-iron brackets, passes round three sides of the hall. All round are painted windows of excellent effect, and, indeed, absolute necessity, to temper the fierceness of an Indian sun. It is impossible to praise this building too highly, but the first time it was filled it was found to have a grievous defect, which it is hoped has now been remedied. The Governor being absent, Mr. Gibbs, member of Council, had to speak. He is a very tall man, and burly. If any one could make himself heard it might be supposed that he would. He spoke—they were big words, uttered with a big voice by a big man; but they seemed to fall at his feet instead of being projected to the end of the hall. Our architects, in fact, are men of taste; their designs are beautiful, but they

do not study acoustics. A series of experiments followed, and it is intended to place the speaker in a cathedra, which will have a sort of pulpit top, slanting upward at an angle of 60 deg. Whether this will cure the evil, *videndum est*. The Secretariat is 448½ ft. long, with two wings to the rear eastward, that is, 81 ft. long, the ends of which are in form three sides of an octagon. The basement contains the printing-rooms, and is 16 ft. high; the first floor contains the council hall, committee rooms, private apartments of the Governor and members of Council, and the Revenue Department offices, and is 20 ft. high. On the second floor, which is 18 ft. high, are the judicial and military departments. The third floor is 14 ft. high, and contains the public works and railway offices. Thus the total height from floor to the beams is 65 ft. The style is Venetian-Gothic, and the design was by Colonel Williams, R.E., and it does him infinite credit. The pillars are moulded Koorla cut stone; the small corridor shafts, the capital, and cornices are of Homanagor stone, which is a superior silicious sandstone of a white tint. The corridor arches on the ground floor are of alternate blue basalt and Durbandar stone. Those on the first floor are of alternate red basalt and Durbandar. The carving of the stone by native artists leaves nothing to be desired. The entrance-hall and principal staircase are very fine. The staircase is lighted by the great window, in a single arch of 90 ft. high, over which is the tower, which rises to 170 ft.

#### A COLLEGE FOR ARTISANS.

##### TECHNICAL EDUCATION.

UPWARDS of a year ago it was proposed in London by some gentlemen connected with the Middle Class School, City-road, to found a college for the purpose of giving evening instruction in technical and general education. The council of the schools are willing to allow their premises in Cowper-street to be used for the purpose if the means can be raised for providing apparatus and appliances. The Merchant Taylors' Company have already given 100 guineas, with which teaching appliances have been procured, which are now in use daily in the Middle Class Schools, and these would be immediately available for the purposes of the college, but considerable additions would have to be made. On Wednesday afternoon several members of the council and gentlemen connected with the livery companies met the Lord Mayor at the schools, and went with Dr. Wormell, the head master, over the buildings, to see how far they could be utilised for the proposed college. The boys were all at work in the laboratories and work-rooms. In one room Professor Barff was showing with large apparatus how gas was manufactured; in another the process of lithography was being explained; some boys were busy at the lathe and carpenter's bench; some modelling; others hard at work at a smithy in the basement. In another part of the college such philosophical experiments as the deflection of the compass, or testing the tension of weights on cords, were in progress. It was evident that there was here in full working order, a teaching staff and the necessary premises for the foundation of the proposed college, if only the necessary funds can be provided. At the close of school hours the boys, 1,500 in number, paraded in military order in the playground, under Sergeant W. Edgar, their drill instructor; and, marching past the Lord Mayor and party to the music of their band, saluted them in correct style, the Lord Mayor pleasantly acknowledging the compliment from time to time. The boys then assembled in the hall, where Mr. F. L. Jones had been playing some admirable selections on the organ, and returned thanks to the Lord Mayor for his visit, by the very sober method of "holding up their right hands," no cheers being called for. The visitors soon afterwards left the building, having agreed to a resolution, "That the

Lord Mayor and other gentlemen connected with the City of London, having made an inspection of the Middle Class Schools, with reference to the foundation of an artisans' college with a system of advanced education, consider the facilities afforded by the Cowper-street Schools well adapted to the purpose, and think it advisable that they should be further developed so that the college for artisans may be established."

The Courts of the Skinners' Company, the Merchant Taylors' Company, and the Clothworkers' Company have recently each shown their interest in this subject by voting a contribution of twenty guineas to the Artisans' Institute in St. Martin's-lane, while the Court of the Dyers' Company have voted £10 a-year for three years for the same object.

The Court of Assistants of the Joiners' Company have voted ten guineas to the City and Spitalfields School of Art, to assist the cause of technical education.

#### MICHELANGELO.\*

(Continued from page 161.)

RAFFAELLE had only held office for six years when his premature death, in 1520, left the works at St. Peter's again without a master. From his affection for Bramante, he seems to have been anxious to carry out the design of the latter in its integrity, and to have spent the time of his official engagement in endeavouring to strengthen the piers which Bramante had left, and otherwise prepare for the construction of the great dome, which he was not to live to see. He collected, as far as he could, all evidence of Bramante's intentions, and prepared to carry them into execution.

Pope Leo, who occupied the Papal chair at the time of Raffaele's death, had now to make a new appointment, and he seems to have acted on the same principle which had given Raffaele practical coadjutors in his work. Baldassare Peruzzi was nominated architect, and Antonio San Gallo, a man of more practical mind, was to assist in structural matters.

Leo X. only survived Raffaele one year; but before he died, there had arisen considerable difficulties in the prosecution of the building. His profuse expenditure, public and private, had embarrassed the resources of the State. He had sought, as we know, to raise money by the sale of indulgences, with a result which he could scarcely have foreseen. Economy had thus become a necessity, and it was decided that Bramante's plans must be curtailed.

Giuliano San Gallo had already retired from the direction of affairs by reason of age and ill-health, and Fra Giocondo died in the same year as Raffaele.

The first duty laid upon Baldassare Peruzzi was, therefore, to revise the design. He was in many ways well fitted for the task, being an accomplished antiquary, and well versed in the study of ancient Classical art, which it was now sought to restore.

Antonio San Gallo, who was associated with Peruzzi, was well known as an engineer and architect. Michaelangelo had criticised unfavourably his plans for the fortifications of the Vatican quarter of Rome, much to the indignation of San Gallo, who declared that a sculptor and painter could know nothing of such things. He had succeeded Michaelangelo as director of fortifications in Florence when the latter abruptly left the city, and the two men had come otherwise into collision. The Farnese Palace at Rome, a design of San Gallo's, was taken out of his hands by the Pope, and entrusted for completion to Michaelangelo, whose design for the great cornice has already been referred to. San Gallo, moreover, had worked under Bramante and was no stranger to his master's jealousy of his great rival.

\* Professor E. M. Barry's third lecture at Royal Academy, March 5th.

Peruzzi and San Gallo at once set about the realisation of the Pope's decision.

Adhering to the idea of a grand and lofty dome, it must have been evident to the practised constructional skill of San Gallo, that the supports for this feature provided by Bramante were altogether inadequate. Peruzzi did not approve of the plan, devised on the Mediæval principles of a Latin Cross, with long nave and aisles. His classical tastes led him to prefer the simpler form of the Greek Cross. He, therefore, cut off Bramante's nave, and reduced his plan to that of the central dome, with four equal arms or naves. He adhered generally to the design of the interior, especially as regarded the apsidal terminations of the four arms of the cross, in which he placed doors, so as to show that he thought the composition of the whole building should be so arranged, as to appear to equal advantage, from whatever side it might be approached. You will, doubtless, remember that this was the idea which Sir Christopher Wren wished to embody in our own St. Paul's, and that the long nave was an addition, forced upon him.

Peruzzi considered that the dome ought to be the principal feature, both externally and internally, and that a long nave was inconsistent with this principle. He urged that Bramante's plan made the dome a mere appendage, and degraded it to a secondary place in the design.

We shall find hereafter that Michaelangelo concurred in these views. They were worthy of an artist of Peruzzi's refined taste, and his design well merits your attentive study. You will notice in his plan, that, probably at the instance of San Gallo, the four great piers of Bramante are much strengthened, and a compactness and obvious increase of solidity imparted to the whole composition.

Advantage is taken of the increase of the great piers, to give to the angle chapels the form of a Greek cross, the central portions of which were to be surrounded by domes. These four smaller domes, grouped around the great central cupola, would have added to the dignity and effect of that important feature, under which the high altar was to be placed.

In the exterior, the contrast between the curved and rectangular forms promised to be much more definite and satisfactory than it is at present, and Peruzzi promised to finish the square sacristies at the four corners, with campaniles.

It has been said that this plan of Peruzzi's was the result of economical considerations, but I do not think he allowed himself to be unduly embarrassed by such difficulties; the design appears to be in every way worthy of his talents, and if it had been realised with appropriate detail, and with the addition of external colonnades, it could not have failed to have produced a magnificent architectural effect.

Circumstances, however, were against him, the extravagances of the preceding Popes had to be expiated, under the chill blasts of one of those biting winds of economy, of which we are not ourselves wholly without experience, in respect of public works.

Leo's successor, Adrian VI., a simple and exemplary man, was indifferent to art, and Clement VII., although different in this respect, found himself too impoverished to do much for St. Peter's; so that it was not until Paul III. succeeded him, in 1534, just as Michaelangelo was finally leaving Florence, that serious proposals for resuming the work could be entertained.

Baldassare Peruzzi did not live to realise his conceptions. He died in 1536, in poverty and distress, not without suspicion of poison, supposed to have been administered by some envious rival.

Again therefore was the work suspended, and the Pope had once more to choose an architect. This time Antonio San Gallo was selected. He had assisted Peruzzi, and to him, as being the man likely to know most of the matter, the Pope now applied. He at once prepared a large model of his proposals.

(To be continued.)

#### IRISH NATIONAL MONUMENTS.

In the House of Commons, Mr. Mitchell-Henry asked the Chief Secretary for Ireland if he would state to the House, who has been appointed by the Board of Works to superintend the preservation of National Monuments in Ireland, what is his profession, and whether he has made the ancient architecture of Ireland a subject of previous study; and whether the Chief Secretary will lay upon the table of the House a copy of the instructions under which the officer is to act?

Sir M. Beach—The hon. gentlemen is, no doubt, aware that the Board of Works is subject to the Treasury, and is not under the Irish Government, but I am able to inform him that Mr. Thomas N. Deane, an architect by profession, has been appointed to superintend the preservation of National Monuments in Ireland. I cannot say whether a copy of the instructions under which he will act will be laid on the table, but the Secretary of the Treasury will probably be able to inform him on that subject. The duties of the officer will be to preserve the monuments and not to restore them.

Mr. Mitchell-Henry—Will the right hon. gentleman answer that part of the question which relates to the matter having been a subject of previous study?

Sir M. Beach—I have already informed the hon. gentleman that the gentleman appointed is an architect by profession, and as the appointment is made by a department not under the control of the Irish Government, I fear I cannot give him any further information.

#### THE ROYAL DUBLIN SOCIETY'S SCHOOLS OF ART.

List of students of the Royal Dublin Society's Schools of Art to whom medals have been awarded for works exhibited at the London International Exhibition:—

E. R. Byrne, Mrs. E. Smith, Joseph Hanrahan, S. Reilly, E. Dallas, Anna Parnell, Anna Ruxton, James Lynch, Felix Thomas, C. Barnes, C. Benson, W. H. Murray, E. Walsh, L. M. M. O'Leary, F. I. Jordan, F. Brett, E. Irwin, M. Irwin, J. F. Miles, Kate Seymour, E. Kerr, J. Kavanagh, S. P. Ball, M. D. Webb, F. Boyle, O. Poole.

#### SOCIETY OF ARTS EXAMINATIONS.

At the general examinations of the Society of Arts (London), the following candidates from Ireland were awarded certificates:—

Edward Bingham, 29, Belfast Working Men's Institute, teacher—arithmetic (1st certificate); James Coey, 19, ditto, clerk—arithmetic (2nd); Edward Coffey, 19, Cork Catholic Young Men's Society, accountant—arithmetic (3rd), English language (3rd); Alfred Fry, 34, Dublin, soldier—arithmetic (3rd); Thomas Harrison, 17, Belfast Working Men's Institute, teacher—arithmetic (2nd); Patrick Kennedy, 19, Cork Catholic Young Men's Society, accountant—arithmetic (2nd), book-keeping (3rd); Richard Mathews, Dublin, soldier—arithmetic (2nd); Robert W. Mulholland, 28, Belfast Working Men's Institute, gardener—gardening (2nd); John Murphy, 18, Cork Catholic Young Men's Society, accountant—arithmetic (2nd), English language (3rd); Timothy Murphy, 19, ditto, accountant—arithmetic (2nd); Henry O'Sullivan, 18, ditto (no occupation stated)—arithmetic (2nd), English language (3rd); William Portley, 17, ditto, carpenter—English language (3rd); Henry Ritchie, Dublin, soldier—arithmetic (2nd); John M'C. Thomson, Belfast Working Men's Institute, teacher—arithmetic (2nd).

#### HOME AND FOREIGN NOTES.

The Cork Harbour Docks Company report shows a net profit on the past year's working of £16,682. After payment of interest, dividends, &c., there will be about £2,700 to be carried forward.

WANTON DAMAGE TO A CHURCH.—The exterior of the Church of St. John, Sandymount, has been mutilated by some unknown miscreant. Over the arch of western doorway runs a semi-circular stringcourse, with sculptured figures. These latter have been broken off, and the fragments scattered on the ground.

STRIKE IN LIMERICK.—The men engaged in the building trades in Limerick have struck work in consequence of their employers' refusal to grant a half-holiday on Saturdays. Upwards of two hundred of them quit on Saturday night.

ATTEMPTED VANDALISM.—Two men, one a labourer the other a corn-porter, have been remanded on a charge of having attempted to injure the statue of the late Prince Consort on the Leinster-lawn. One of the prisoners was caught in the act of forcing down on the head of the statue a zinc can, on which were the words in red letters, "No Residence for Royal Princes." A shroud of sack-cloth, saturated with paraffin oil, was placed about the figure, with the intention, doubtless, of its being set fire to.

CHIMES AND CARILLONS.—Messrs. Gillett and Bland, of Croydon, London, have been selected by the Corporation of Manchester to manufacture and put up in their new town hall, a great clock and carillons. The clock is to strike the hours upon a bell of seven tons, and to chime the four quarters upon eight bells, the time to be shown upon four 16 feet illuminated dials. There will be another useful mechanism in connection. An automaton gas-apparatus will be fitted to the clock for turning the gas up and down, so arranged as to answer all seasons of the year. (See advertisement on another page).

GREAT FIRE IN DUBLIN.—The great fire that took place since our last issue, in the south side of the city, by which nearly the whole of Chamber-street was consumed by the ignition of whiskey, has been fully reported in the daily press. The loss of property is estimated at £300,000. We hope the calamity will lead to a better provision in the storing of whiskey in the city. Whilst we trust the poor will be fully compensated for their losses, in a sanitary point of view much regret cannot be felt for the extinction of wretched houses which were little less than nurseries of fever.

THE LORD MAYOR ON MUD.—In responding to the toast of self and fellows at the annual visit and repast of the Corporation at the Glencree Reformatory, the Lord Mayor of Dublin said:—"I would not say that the Corporation were immaculate—that there was not occasion sometimes to fling a stone at them. Certainly it was convenient to throw a handful of mud as they passed through the streets." Very convenient in sooth. We are unable to say how many handfuls go to make up a cartful; but, judged by the state of the streets north and south, the Corporation of Dublin could supply mud by the ton both in a liquid and a powdered state.

OLD NEWSPAPERS.—In a room adjoining the City Free Museum, London, is a curious collection of old newspapers, the news and advertisements in which are very interesting. Prominent amongst those of an ancient date are *The News*, 1605; *The London Gazette*, 1684; *The Athenian Mercury*, 1695; *The Post Boy*, 1711; *The London Journal*, 1723; *The London Farthing Post*, 1730.

A SANITARY UNDERTAKER.—A newspaper, published a couple of centuries ago, contains the following advertisement:—"James Maddox, coffin maker, and clerk of St. Olave, Jury, London, at the sign of the Sugar Loaf and Coffin, in the Old Jury, secureth the corps of any dead body from any ill scent or annoyance, without embalming, embowelling, or wrapping in sear cloth, for as long time as shall be required, or for as long time as they shall keep them above ground; and if it be desired, they may have a view of the face for three or six months, which he hath performed, as is well known to several persons of quality and others in and about the City of London. This is he that took up the corps at Painswick, in Gloucestershire, after it had been 13 weeks buried. He hath also an excellent way to take up any corps that hath been some time buried, and preserve the same from any ill scent for the conveying of it to any other place, as hath been eminently performed by him. He also (by God's blessing) hath cured several persons of quality of the gout, and giveth ease within half-an-hour, though the pain be never so violent."

MUCH WATER AND LITTLE MILK.—There was a neat specimen in the way of milk adulteration in the city of Waterford lately, illustrated with all the flourishes imparted by police-court word-painting. Mrs. Ellen Fitzpatrick professed to sell milk, but she sold water with an admixture of milk. For the water she pocketed the price of milk, and the magistrates ordered that she be sent to gaol for two months, unless a fine of £5 were paid. Of course, the money is paid, and Mrs. F. is enjoying the liberty of the subject, with the full privilege of drawing upon the resources of the pump, without the inconvenience of troubling the cow. If no money fine had been imposed, and if the lady in

question had been allotted an oakum-picking task under conditions of solitude, perhaps some of the milk consumers of Waterford would have realised during her seclusion the exceptional pleasure of drinking milk from a source to which "Simpson" is not affiliated by any ties.

**A COLONY OF TINKERS.**—Although familiar for some time past with the numerous advertisements for workmen of every class belonging to the tin trade, we were rather astonished at reading the following:—Tinkers wherever they are met have a character almost as distinct as that of gipsies from the rest of the community. An incident at once ludicrous and melancholy has just occurred at Wick, in Scotland, where a colony of tinkers, who for some years have herded together in the cleft of a rock in the North Cove, have been driven by rats from their dwelling. On Wednesday last the tinkers and their families left the hole in which they have so long found a shelter. They passed through the town in two bands, and, according to the *Northern Ensign*, "a more sad sight has seldom been witnessed in Wick or anywhere else in Scotland." The first band was composed of two men, two women, and seven children; and the second of some sixteen men, women, and children. One of the women led a child by the hand, carried another on her back, and was expected shortly to give birth to a third. There were at least ten children under seven years, most of whom had been born in the cleft of the rock. Some of them were nearly naked, two were clad in guano sacks, and the clothing of the others was in a lamentable state of deficiency and repair. The tinkers with their families dispersed in different directions, taking with them their stock in trade and furniture. The latter consisted of "nothing beyond what were once two or three blankets," while the "stock in trade" was made up of "a few miserable tinsmith's tools."

**ACTION FOR LIBEL.**—The *Athenæum* of 19th ult. has the following: Our motion for a new trial, in the action for libel brought against us by Mr. T. B. Johnston, was heard this week at Edinburgh before the Second Division of the Court of Session. After listening to the arguments on both sides, the judges unanimously decided that the damages awarded last March by the jury were "outrageous," and gave Mr. Johnston the choice of submitting to a new trial, or leaving the Court to reduce the damages. Mr. Johnston accepted the latter alternative, and the Court thereupon fixed the damages at £100 instead of £1,275; an important decision, as it shows that the judges will not support Scotch juries in inflicting vindictive damages on journals which may have ruffled the feelings of Edinburgh publishers. The result will be not unwelcome to English newspapers, but the chief gainers by it will be the Scotch booksellers, who, had the verdict of the jury been allowed to stand, would have found that the press preferred to leave their publications unnoticed rather than run the risk of incurring heavy fines.

**A GREENHOUSE IN AN ENGINE ROOM.**—Some time ago Mr. A. Dawson called our attention to the fact that in the well-organised and interesting factories of the Waltham Watch Company, at Boston, Massachusetts, the engine room is converted into indoor gardens. The chief engineer, being fond of plants, conceived the idea of cultivating them in his leisure moments in the engine-room, and, taking advantage of a considerable amount of glass roofing surface, he succeeded in making what is described to us as a beautiful but peculiar hothouse. We understand that in forming the surroundings of this factory a noteworthy amount of thoughtfulness and good taste has been displayed in planting and gardening. There is nothing that suggests the usual close and sunless dinginess of the manufactory. Windows, opening at all points, let in floods of light, give access to the fresh breezes, and open the prospect to charming scenery. On one side is the beautiful river, on the other a park surrounded by the neat cottages of the workmen, while the quadrangle within, with its summer-house and fountain, is planted with ornamental shrubs. In fact, the whole aspect and spirit of the place betray the intelligent sympathy of the managers with their large family of working-people, men, women, and children.—*Garden.*

**THE TIMBER SUPPLY OF THE WORLD.**—The rapid disappearance of our own forests, and our increasing dependence in consequence on foreigners for timber, give peculiar interest to a report on the growth and consumption of this important article of produce abroad, which has just been presented to Parliament. It is rather alarming to find that in nearly all other countries—at least, all those within easy reach of our wood merchants—the consumption of timber is also in excess, more or less, of the amount produced. This is the case in Norway and Sweden, from which we have drawn

our chief supply of pine, so essential in ship and house building. In Sweden it has been found necessary to prohibit the felling of trees below a certain girth, which is likely soon to affect the supply of timber for pit props, and thus raise the price of coal. In Norway special steps have been taken, both by the Government and by individuals, for replanting tracts of forest land. Planting-schools and nurseries have been established, public funds have been voted, and officials appointed for the same purpose. The wasteful and indiscriminate felling of trees in these Northern countries has been productive of climatal deterioration, as well as scarcity of timber. Around the coast line, it is stated, the bleak winds now blow unchecked, and, in the absence of older trees, the tender saplings perish in the blast for want of shelter. In middle Europe matters are in much the same state. In Austria, Germany, and France special legislation has also been resorted to for the protection and extension of the forests. In the United States even, the area of timber-producing lands is becoming rapidly exhausted; but the citizens have become alive to the danger that menaces them in this direction, and are proceeding with judicious measures of protection and replacement. In south America alone is the supply in excess. There vast forests remain in their primeval state, but the want of overland transport is likely for some time to keep down exporting power.—*Iron.*

**ROMAN HOUSES.**—The domestic arrangements of Roman houses differed from those of houses of the present day. The Roman rooms were spacious and few. Instead of suites of drawing-rooms, dining-rooms, libraries, morning-rooms, such as are to be found in the majority of houses now used by the richer classes, the Roman householder had one large room, in which he chiefly lived. At his meals he lay upon a kind of triple couch, carved in stone or marble, and covered with rich embroideries and soft textile fabrics. These triple couches were used in a hall or room called the *triclinium*, and this term is sometimes applied to these triple couches. They were arranged around a pedestal, which was, like the Grecian prototypes, generally of a portable character. Upon this pedestal was placed a slab, or *abacus*, which was already spread with the food and necessary eating utensils. The different courses of a meal were served upon different slabs or *abaci*, and when the meal was finished the pedestal was removed, and the guests remained reclining upon their *triclinia*, whilst the entertainment which succeeded the meal might follow. Thus this style of life is exactly the reverse of what now takes place. As soon as a meal is finished the occupants of the eating-room are glad to leave it, and go into another altogether. By removing themselves they get rid of the necessity of removing, as the Romans did, the furniture. Here, then, I think a fairly strong contrast may be traced between ancient furniture and modern furniture. Our furniture is made for special use in the room in which it is placed, and for which there are particular purposes. The ancient furniture was more or less portable, and drawing-room and dining-room and bed-room furniture were all used in one room. The fashion to have a great number of small and special rooms for special purposes is of comparatively late date. Up to Mediæval times the influence of those customs, which the Romans introduced into the northern countries of Europe, still remained. The houses consisted of a far less number of individual rooms than at present. The furniture to be used in such circumstances was, as I have already pointed out, of a portable character. The mode of manufacture and style of ornament differed from those of the Romans, and with the advancement of civilisation, the habits of nations and the articles of their domestic use gradually changed.—*From paper by Mr. Alan Cole.*

## TO CORRESPONDENTS.

**ARCHITECTURAL ASSOCIATION OF IRELAND.**—An "Old Subscriber," and others who lately put the query, are informed that it is scarcely of sufficient importance for us to publicly state the reasons why the "papers" were not published in the *IRISH BUILDER*. Were we to enter into a faithful explanation of the reasons why we were fated to print recent papers, we are certain—though some gentlemen interested would feel sorely aggrieved—the great majority of our readers would agree that we were fully justified in acting as we did. We hope, however, during the next session of the Association, under a new regime, we may be enabled to represent matters in a better light, and do justice to every honest effort made in the name of the profession in Ireland.

**O. B. (Kingstown).**—Places of accommodation here being long a necessity in the marine township, and we wonder much that the commissioners are so oblivious to these indispensable public requirements. A late visit convinced us of the truth of your remarks, and English visitors and travellers have also called our attention to the want.

**A MANUFACTURER (Thames-street, London).**—We will endeavour to get you the information you seek, and furnish you the particulars.

**A MARBLE MASON (Euston-road).**—Yes, at Glasnevin and also in the city. Both London and native workmen are employed.

**R. S. (Belfast).**—The engineer of the Dublin Port and Docks Board would, in our opinion, be the proper party to communicate with.

**A LOOKER ON (Queenstown).**—Your letter is beside the question, and otherwise too rambling. Write again, and confine your remarks briefly to the question of the work done or being done.

**A MANCHESTER IRISHMAN.**—We don't believe in "pitching-in" in the style you suggest. The facts may be all you say, but we have no time or space for professional warfare. There is no law to prevent people from "bragging" of their position, if it pleases them.

**T. F. (Over Darwen).**—P. O. Order to hand. We are glad to hear of the briskness of trade in your locality. With a weekly wage of 38s. 8d. (given freely) and a nine hours' day, the men ought to be content. They may agree with you that "prosperity reigns in power."

**PHIZ.**—Yes; they surely remind one of the "photograph!" which used to appear at the head of "Paddy Kelly's Budget." The Terms will doubtless have the page framed and glazed as "correct portraits of the combatants," &c. *memoriam.*

**J. J. P. (Belfast).**—We are obliged to hold it over until our next issue. Thanks.

**INQUIRER (Kells).**—You will find the Dublin agent's name at foot of Messrs. Craven, Dunnill, and Co's, advertisement in our present issue.

**J. W. D.**—It would be impossible for us to give any idea of the "probable cost" of the house you require. You should consult a respectable builder on the matter.

## NOTICE.

*It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.*

*We shall be glad to receive from any of our readers notes of works in contemplation or in progress.*

*Correspondents should send their names and addresses, not necessarily for publication.*

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TO BUILDERS, CONTRACTORS, &c. &c.  
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The lowest, or any Tender, will not necessarily be accepted.  
By order,  
THOS. H. ATKINSON,  
Clerk to the Burial Board.  
Clerk's Office, North Brunswick-street,  
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# The Irish Builder.

VOL. XVII.—No. 374.

## Public Records in Ireland.



IN our last issue we indicated the contents of the Seventh Report of the Deputy-Keeper of the Public Records in Ireland, and from a recent visit to the Record Buildings we can bear testimony to the truth of the statements made, the scope of the labour expended, and the expedition and care shown in the arrangement of our various public records—legal, civil, and ecclesiastical. It ought to be more generally known that the 4th section of the act vesting in the Master of the Rolls the records of any court which shall have to exist, rendered it the duty of the Deputy-Keeper to remove to the new buildings provided for the general purpose, the numerous collections of diocesan and other ecclesiastical documents preserved at the private residences of the custodians. We have no doubt ourselves that there are various valuable diocesan documents still stowed away in the libraries or lumber-rooms of gentlemen who formerly filled public appointments, or otherwise they are in possession of the families of the deceased. Not long since it came to our knowledge, or rather we were informed, that certain families in this country and in England, held in their possession valuable Irish documents. It is a fact that in public libraries in England there are valuable MSS. which ought to be restored to the Record archives of this country. Early in the present century there was a very lax system in vogue, and by the permission of those in office very valuable documents were lent to public writers, among whom were some of the *dilettanti* class, and these documents have never been returned, so far as we are aware. We would like to know what has become of the minute books and other records of several of the minor corporations or ancient city guilds of Dublin? A short time previous to the passing of the Irish Municipal Reform Act, the property and property deeds of these bodies were made away with in a most mysterious manner, and we are of opinion that there are not a few families in this city and country who are enjoying the ill-got gain founded on funds originally designed for charitable purposes. There never was any proper enquiry instituted on the head of these matters; and, if we are not greatly astray in our calculations, some property deeds and trusts of the old Corporation of Dublin have been diverted or smuggled away in the same manner.

In respect to the custody of some diocesan records, the Deputy-Keeper, in his Report, says:—"The last collection of this nature of the existence of which I have been made aware, was at Aughrim, in the county Galway, under the charge of the Rev. John F. T. Crampton, A.M., Registrar of the United Diocese of Clonfert and Kilmaedagh. These comprised, together with testamentary, matrimonial, and diocesan matters, some documents relating to Church property for which I hold myself accountable to the Church Temporalities Commissioners. The

collection was removed to this office on the 17th of September." In respect to some records mentioned in the Report of the Keeper (Sir Bernard Burke) the Deputy-Keeper remarks that he would "refer particularly to the series of 139 folio volumes containing the proceedings of the Trustees for the Encouragement of the Linen Manufactures in Ireland, from the year 1711 to 1828. Considering the great past and present extent of the linen trade in this country, these Records of the first systematic steps taken by public authority for its regulation and development possess a high interest for the historian and economist."

We thoroughly agree in the remarks of the Deputy-Keeper as to the importance of these records. In the Appendix an abstract of the first day's proceedings of the Linen Board is given, reciting the deed by which the original trustees for the respective provinces were appointed. The minutes are "signed, sealed, and delivered" in the presence of James, Duke of Ormond, Lord Lieutenant, the witness whereof, who thereunto "sett my hand and seal," and is subscribed by Thomas Bellew and James Butler, not unknown names in the annals of this country. Among the trustees for the four provinces the student of Irish history will recognise many once popular and weighty names—prelates, judges, and peers—some of whom are still represented in family and name at the present hour in Ireland.

In respect to the Records known as the "Fiant" of Henry VIII., the Deputy-Keeper observes—"These Records named 'Fiant,' from the initial words of one class of instruments so known—'*Fiant literæ patentes*'—are of great value as constituting the primary authority for grants under the Great Seal. Such Grants, subsequent to 1665, had to be enrolled in Chancery as a condition of their validity, and the enrolments so made, where the Rolls have been preserved, dispense with the evidence of the Fiant; but for Grants before that date, there was no certainty that any transcript would be found on the Roll, and, in point of fact, great numbers of Letters Patent of an early date remain unenrolled. To these Grants the Fiant affords primary and, in most cases, the only clue accessible to the public, and sometimes where the original letters are lost, to those representing the grantees. The importance of framing a well-indexed calendar of their contents has long been acknowledged, and it is hoped that this work, now completed for the reign of Henry VIII., will be found so far to supply all that is necessary."

The alphabetical index to the Fiant, both as to names and places, often written in the original entries in a variety of ways, we consider is a most valuable and ready table of reference, and is excellently prepared. The "Preliminary Observations" to the Calendar of Fiant, by Mr. J. J. Digges LaTouche, affords a sufficiently clear and concise statement of the origin and history of these Fiant or Warrants, and of their uses. As far as relates to Ireland they are divided into three classes—those signed by the King, those signed by the Lord Deputy, and those signed by other competent authority. An example is given of the second class, said to be peculiar to Ireland, which is in Latin—indeed the most of the Fiant were written in Latin. The Fiant are divided into five common forms, of which are annexed speci-

mens. The 1st are "Privy Seals," the 2nd are "Indentures," and under these forms are comprised all grants of leases under the Commissioners, chiefly two—one dated 20th of May, 81 Henry VIII., being a commission to survey and value the rents and revenues of the dissolved religious houses, to grant them for the term of 21 years, and to assign to their heads competent pensions. The other, dated 8th of July, 36 Henry VIII., giving authority to Commissioners to let all manors, lands, and possessions in the hands of the Crown for 21 years. 3rd. Warrants for grants of pension under the Commission of the 7th of April, 80 Henry VIII., authorising Commissioners to take charge of religious houses, and to assign pensions to those persons who willingly surrender. 4th. Grants of Pension under the Commission of 20th May, 81 Henry VIII., before mentioned, of lands under Commission dated 1st September, 83 Henry VIII., giving authority to sell and dispose of the possessions of friars' houses in Ireland, reserving a rent; and of Wardship and Livery, under a Commission for Wards and Liveries.

All the above instruments are of historical value—indeed many of them afford rich under-glimpses of the state of Ireland, socially and politically, in the time of Henry VIII. To the historian the "Fiant" are replete with facts, and are suggestive of more than they express. We will afford our readers, by a few descriptive extracts from the catalogue, an insight into the nature of some of these Fiant. Some are very curious indeed; some may excite a smile, while others are grave enough to inspire a malediction on the head of Bluff Harry, who seemed not to have the fear of God before his eyes when confiscating or bestowing what did not belong to him. But let it pass, for these sores have passed into history, and we suppose by-gones must be by-gones, despite the protests of politicians and others interested in the irrecoverable past.

"1522.—Grant to Thomas Darcy, Rector of Houth [Howth], of the office of Clerk or Keeper of the Rolls of Chancery. To hold during pleasure, with a fee of £20 of silver out of the issues of the Manor of Eskyr" [Esker, County Dublin].

The following indicates a Welchman in office:—

"1522.—Grant to Rees ap Davyd of the office of Controller of the Customs of Drogheda. To hold for life, with a fee of 10 marks sterling."

"1525.—License to Thomas Gerald, Rector of Cloghran, Swerdes [Swords], for absence from Ireland for seven years." It would be interesting to know the mission the Rector set out upon, and what were its results.

"1527.—Charter to the bailiffs and commons of the borough of Dundalk. Recites Charter of Richard II., grants liberty to buy and sell and export salted hides and other goods of the staple, and all merchandise growing in Ireland, or brought to Dundalk from England or other foreign countries, as fully as the men of Dublin and Drogheda may, also to have a cocket seal as in Dublin and Drogheda." Dundalk seems to have earned the good graces of Henry, and maintained her reputation for commercial enterprise.

"1528.—License to George Seyntleger, a Knight, son and heir of Anne, and co-heiress of Thomas, late Earl of Ormond, and to Anne, wife of the said George, for absence

from Ireland, for their lives. Also pardon of all intrusions." Thus troublesome customers were gently and delicately transported out of the way by being made absentees, and often against their will.

"1530.—Pardon of Bernard or Brene O'Conghor *alias* O'Connor, of Othfalaly [Offaly] captain of his nation." Bryan O'Connor, we have no doubt, was one of these "stout limbs of the devil" who gave the authorities and settlers in the English Pale considerable annoyance, and who received pardon for his surrender.

"1584.—Grant to Thomas Fynglas, of the offices of Prothonotary and Keeper of the Records and Chirographer of the Common Bench. To hold for life.

"License to John Travers, to export within seven years 83 sacks of wool (each sack containing 26 stones 1 pound) to the ports of Weschester, Lyrpole, or Brystowe in England" [Liverpool and Bristol].

"1485.—Grant to Thomas de St. Lawrence, *alias* Howth, gentleman, of the office of Second Justice of the Chief Place or Bench. To hold during pleasure, with a fee of forty marks."

The following tells a tale, but there are similar examples among the "Fiants":—

"1586.—Grant to John Alen, of Cowteshall, County Norfolk, Master of the Rolls, of the Priory of St. Walstans, County Kildare, and the Manor of Kyldroght, with their appurtenances. To hold for ever, by the service of two knights' fees. Also a direction for the issue of a commission to suppress the priory."

"1587.—License to Richard Forster, gent, to transport annually during 6 years 200 stones of wool from Ireland to any port in England." In 1538 we find another pardon given to one Bernard O'Connor, of Dengyn, in Offaly—the same "captain of his nation," probably, as the one before mentioned, who, having got sorry for his surrender, made a raid again on the English Pale.

"1539.—Warrant of Commission for a pension to Sir Henry Duff, late Abbot of St. Thomas Courte by Dublin, of £42; to Sir James Cottrell, late Abbot, a pension of £10 (in confirmation of a grant from the convent); to Sir John Brace, prior, a pension of 53s. 4d.; and to the curate of the Church of St. Katherin by Dublin; to Sir John Butler, his 'con-brother,' a pension of 40s.; to the Curate of St. James' by Dublin, and to have his orchard within the precinct of Thomas' Court, issuing from the parsonages of Grenoke, &c.; and to Patrick Clyncher, 'clerc of the organs,' a pension of £5."

The shelving heights over the Liffey, on the south side of the river, must have had pleasant views in the above years, with their gardens and orchards, and the tributaries of the silver Anna rushing through. Turn from this picture to the present, with their once wooded slopes covered over with dilapidated buildings, mostly foul courts and alleys, foul air, dung yards, rampant, and gardens extinct. Over the graves of buried generations the youngest as well as the "oldest inhabitant" must mourn betimes, for prosperity in patches out and about is but a slight set-off against large districts crammed with a misery-steeped population. Under the "Fiants" of Henry VIII., abbots and monasteries disappeared, the poor suffered, and, though some evils were redressed, much injustice was perpetrated.

"1589.—Lease to Edmund Redman, sur-

geon, of the site of the Hospital of St. John the Baptist, without the Newgate of Dublin. To hold for twenty-one years at a rent of 48s. 4d."

"1589-40.—Grant to William Cottrell, conventual person of the late Abbey of the B. V. M. [St. Mary's Abbey] by Dublin, of a pension of £3 6s. 8d., issuing out of the lands of Robockeswalls, parish of Portmarnock [Rob's Walls, by Malahide]."

These are only a few of the "Fiants" in an epitomised form. In our next we may quote some more, including leases, grants, pardons, &c., of a varied character, affording sidelights to the state of Irish society in the reign of Henry VIII. We look upon these "Fiants" as valuable aids to the native historian.

#### PUBLIC WORKS IN IRELAND.\*

A PERUSAL of the present Report affords much food for thought and criticism. It shews us what is being done, and is suggestive of what might be done through the action of the Board of Public Works in adding to the social and material prosperity of the country. We have no desire to philosophise on the head of matters contained in the Report; the statistics tell their own tale, and we cannot alter the figures for the purpose of shewing that we are better or worse off than we are. During the year 1874-5 loans have been sanctioned for a variety of objects in the way of improvements to local boards, and for railways, harbours, docks, fishery piers, labourers' dwellings in towns, glebe loans, Public Health Act (1874), river drainage maintenance, river drainage works by local boards, and for improvements generally under the Land Improvement Act and the Land Act, the total sanction for all services being £326,904, against £307,381 in the previous year.

It ought to be more generally known that under the Irish Public Health Act of 1874 the Board of Public Works is empowered to make loans for objects which may be deemed sanitary improvements, in pursuance of any power of borrowing already conferred by the Sanitary Acts, and which were heretofore dealt with by the Public Works Loan Commissioners, England. To use the words of the Report, these loans may be made to discharge the debts incurred for works already executed, as well as for those which are to be executed, and are repayable within a period of from 30 to 50 years, the rate of interest varying in accordance with the discretionary powers conferred by the Act on their Lordships of the Treasury—from 3½ per cent. for 30 years' loans to 4 per cent., when the limit of 50 is required for repayment. It is to be noted that the time granted for the repayment of these loans is contingent: first, on the "probable" duration and continuing utility of the works in respect of which the sum is required; and second, on the extent of the rate and the ability of the borrowing locality to discharge the debt in the shorter or longer period specified by the Act. Perhaps the Town Council of Dublin would consider over these conditions when about to borrow for sanitary improvements, eternally talked of but seldom performed.

Up to March last, loans under the Public Health Act have been sanctioned to the ex-

tent of £54,000, which includes a loan of £50,000 for constructing waterworks for the city of Waterford, and since the 1st of April other applications have been received which will involve a considerable advance of money out of the Public Works Loan Fund during the present year. Since the 31st of March last, under the Irish Public Health Act the following applications have been made for loans, some of which have been sanctioned by the Treasury, and others conditionally. The Town Council of Belfast, for sewerage works for part of the borough in the Newtownards district, asks a loan of £12,281. The Corporation of Dublin "for sundry works" connected with the Water Works—filter beds, township works, meters, etc., ask £85,448 11s. 1d. Take note of the 11s. 1d., ratepayers of Dublin! for therein you will see the drapers' or tailors' conscientious touch of scrupulous exactness of skinning the pound by the reduction to 19s. 11½d. The guardians of Ballyvaughan Union, for necessary works for a supply of water to the town and Union Workhouse, want £50,000. The Town Commissioners of Newry, to enable them to pay off existing loans, obtained and expended in providing a supply of water for that town, seek £27,000. Raising a loan to pay another loan, and thus throwing on increased burdens on the ratepayers, is not a very wholesome proceeding, but perhaps the Newry Commissioners see their way, and in the matter of water, the best gift of heaven, there is some good excuse to be made. We hope the drainage of the frontier town keeps pace with the purity of its water supply, and that Newry will not pay too dear for its whistle! The Galway Urban Authority require £23,000 for improvements in the sewerage and drainage of the town, and the guardians of the Newry Union, apart from the Commissioners, ask £5,000 towards a supply of water for the town of Warrenpoint. In the last instance we have a town through its commissioners seeking £27,000 of a loan to pay a loan, and the guardians seeking £5,000 to increase a water supply. Applications for wants of another kind are those of the Grand Jury of Queen's County, by Presentment at Spring Assizes, in which a loan is asked for £2,000 for Court-house at Maryborough. The Grand Jury of County Sligo want £15,000 "to rebuild, repair, alter, and fit up" the County Court-house.

Passing further on through the Report, we come to matters of public buildings, wherein we find that the new Post Office at Limerick has been for some time completed; that new public offices are in course of construction at Londonderry and Waterford. The intended enlargement of the Cork Post Office has not been undertaken, owing to the legal difficulties connected with the acquisition of adjoining premises, before noticed in this journal. In Dublin for some time past extensive alterations are proceeding at the General Post Office, and are now nearing completion. Accommodation for the Returned Letter Branch and for Telegraph Stores has been provided by fitting-up the premises 85 Marlborough-street.

In respect to Customs buildings, new public offices for the accommodation of the several Revenue Departments at Londonderry and Waterford are for some time proceeding, and will possibly be ready for occupation early next year. At Cork Custom House Quay the fenders and piling for the quay wall have

\* Forty-Third Annual Report from the Commissioners of Public Works in Ireland. Dublin: Printed by Alexander Thom.

been renewed, and new iron bollards provided. At several places throughout the country Constabulary buildings have been erected. At the depôt, Phoenix Park, extensive works are being done in forming a recreation and reading-room, and in reconstructing stores for arms. We are glad to find some needed wants are being supplied in this city in connection with the Metropolitan Police buildings. Additions have been made to the barracks at Lad-lane and Kevin-street, and hot water apparatus for heating the cells at ten stations have been provided. Baths have been constructed for the use of the men at Exchange-court, Rathmines, Kingstown, and Dalkey, and also at Lad-lane and Capel-street Barracks.

At the Ordnance Survey Office, Mountjoy Barracks, a new building for the accommodation of lithographers and other staff is in progress of construction; and at the Royal Hibernian Military School additional shed accommodation, new quarter-master's store, and a gymnasium are being erected. The Phoenix Park, the only free public park we have, is pretty well looked after by the Board of Public Works, and its proper conservancy is a matter of importance. The cultivation of "the People's Garden" will, we hope, be always carefully attended to. We think facilities could be afforded for apportioning a part of the park for a swimming lake, morning and evening, from May until the end of September, for the use of the citizens. The park is an extensive one, and could well afford a large area being marked off for the purpose, enclosed in its circuit by a thick plantation of evergreens and other trees, whose thick foliage in the summer months would secure a compact screen to hide all view of the swimmers from outside. This system has been carried out in some parks in London and elsewhere in England.

Several new Coast-Guard Stations have been erected throughout the country during the year, and several more are in process of construction. The works of repair and maintenance have been executed at various stations, at the cost of £3,494 odd. The necessary works of repair have been, as usual, carried out at the Queen's Colleges, Belfast, Cork, and Galway.

In regard to National Schools, 17 ordinary ones have been erected during the year, thus affording a proof of progress in the matter of providing for the education of youth. The total cost of these new schools was £5,908 odd, towards which the Board of Works paid as grants two-thirds, the remaining third of the expenses being contributed by local persons interested in the schools. Various additions and enlargements have also taken place in connection with 21 schools, at a total cost of £1,817 odd, the Board and others interested subscribing the proportions specified above. In addition to this outlay there has been expended in relation to new works, alterations, and maintenance in connection with the Metropolitan and Central Model School Buildings, and District Model, Minor Model and Model Agricultural Schools, the sum of £4,956 odd, and a further sum of £1,928 odd for furniture for those buildings; and in the ordinary National Schools in the charge of the Board the sum of £2,535 odd on works of repair and maintenance.

Under the "Labouring-Class Lodging Houses and Dwellings Act (Ireland)," there were six applications received during the year ending last March, but only one loan

was decided upon, amounting to £910, for the erection of 13 dwellings. We would like to have seen far more progress made in this direction.

In respect to Harbour Improvements—at Kingstown Harbour two floating fenders have been provided for protecting her Majesty's ship lying alongside the Victoria Wharf from chafing against it. Progress has been made with the dredging of the harbour, which included the deepening of berths alongside Victoria Wharf, outside those berths, and a passage leading thereto, also a shoal inside the entrance to the harbour, known as the "Seventeen-foot Bank." Repairs have been executed at Howth, Donaghadee, and Dunmore Harbours. In relation to Fishery Piers and Harbours, there has been a number of memorials for new piers, and several lately in process of construction are now completed.

Under the Tramways (Ireland) Acts, applications having been made pursuant to the provisions of new acts for certificates, &c., for the Warrenpoint and Rostrevor Tramway, the engineering inquiry and report required by the acts have been made by Mr. Forsyth, C.E. Under the Sewage Utilisation Act of 1865, and the Sanitary Act of 1866, the applications formerly made under those Acts are now made in the first instance to the Local Government Board, who recommend them to the Board of Public Works under the provisions of the Public Health Act (Ireland), 1874, and the applications and sanctions for loans under this act we have stated further back.

The Report of the Commissioners informs us that eighteen candidates for the office of County Surveyors' Assistants have been examined pursuant to the provisions of the Act in this case provided, and that their qualifications were certified to the County Surveyors. We would like to have read that the position of the Assistant County Surveyors had been greatly improved in consequence of the inquiry which their memorial challenged, which, on due investigation, was found to be correct. The remuneration received by the Assistant County Surveyors is totally insufficient to support robust life, not taking into consideration the respectability that attaches, or ought to attach, to their office.

In another paper we will deal with the matter contained in the Appendices B and C, containing the Reports on Inland Navigation and Harbours, and the Inspector's Annual Report, under the head of Landed Property Improvement. The last Report contains many items of interest from the different provincial districts illustrative of what is being done in the way of improving estates and providing better housings or dwellings for the agricultural population.

#### HEALTH OF THE PEOPLE.

The last Quarterly Return of the Registrar-General shows some facts worthy of consideration. The birth-rate in this country was considerably under, and the death-rate considerably over, the average for the corresponding quarter of the last five years. There was a decrease of emigrants of 2,685, so that the population, estimated to the middle of this year, stands at about 5,297,732—or in other words, 2,565,191 males, and 2,732,541 females. The total mortality from scarlet fever was much under the preceding quarter, there being a marked diminution in the province of Leinster. In Ulster there was also a subsidence to some extent of the

epidemic, and in Munster but few deaths from the same cause. In Connaught, however, the epidemic seems to be spreading fastly. In the December quarter, 1874, portion of the province suffered severely. The mortality plainly stated during the first quarter of the year exceeded by 1,910 the average for the corresponding period of the three years previous. The high death-rate represented 2.1 per 1,000 over the average of the first quarter of the preceding five years is mainly attributable, according to the Registrar-General, to the harsh weather and the prevalence of scarlet fever. No doubt the inclemency of the season caused great mortality amongst the young and old, particularly the latter, for 48.8 per cent. of the latter deaths are shown to have occurred in persons sixty years and upwards.

Throughout the country, as will hereafter appear, notwithstanding visible improvement in places, the bad sanitary condition of the majority of our towns renders it impossible to reduce the death-rate much below what it stands at present. The Registrar of the Keady District, Armagh Union, reports one of those cases of "waking the dead and killing the living," so often denounced by us in these pages. It was the case of a labouring man; his remains were kept for two nights in a small room, overcrowded with friends and neighbours; decomposition set in, producing the usual sickening effect on those present. At the burial the smell was so offensive that the clergy could scarcely finish the burial service. A large number of those who attended the wake suffered from blood poisoning, with disease of the lungs, the man's wife having died of it, two of his children, his brother-in-law, sister-in-law, and others being also prostrated.

In Ballymoney District, typhus and scarlatina of a malignant type has prevailed for a while. In the same town, in the Kilrea District, scarlet fever prevailed widely. Need we wonder, when we hear that pigs were kept in many of the infected houses, while the air was further poisoned by the cesspools close to the doors. The District Registrar says:—"The sanitary laws are readily enough obeyed, when the covering of the manure pit with bog or earth is required, but the banishing of the valuable though unlawful inhabitant to a cold sty is felt to be a hardship by our poorer peasantry."

In the Cookstown District there was a severe epidemic of scarlet fever, now happily subsiding.

The magistrates at Tallaght, Co. Dublin, do not seem to be alive to the necessity of drainage, and are inclined to give the deaf ear to the District Registrar, who reports:—"The sewer, which, in my last report, I said I thought necessary to have made in the village of Tallaght, was brought under the attention of the magistrates at the last road sessions by two most respectable cess-payers, but would not be allowed. I am still of opinion that it is absolutely necessary, and that as long as the village is allowed to remain in its present filthy state, so long will it be unhealthy."

In Carrick-on-Shannon, Jamestown District, some slight progress is reported in sanitary improvements; prosecutions have taken place with good effect, and, externally at least, the people keep up a show of cleanliness, but the evil still lies within and under the houses. More than one District Registrar speaks of the evils of inoculation and the infatuation of the people in clinging to the old and dangerous practice.

In Mullingar, Ballynacarry District, small-pox was prevalent. In one house there were four persons, all sleeping in a small room at one end of the habitation, whilst at the other end the room was occupied by a cow, calf, and a pig, there being no out-house or any place to house these animals. What could be expected here but the usual results, for is it not a veritable hot-bed or nursery of diseases?

In Carlow District, typhoid or enteric fever prevailed amongst the children, and scarlatina attacks were frequent. Fever was also

common during the third month of the quarter. Of the 75 deaths occurring here, 7 were of people 80 years and upwards. One old woman was reported to have reached her 102nd year, who had lived very abstemiously. This and the following case might supply food for Mr. Thoms, late of *Notes and Queries*, who has a suspicion of all centenarian deaths.

In Tipperary, Emly District, the centenarian registered during the quarter was one known as Nance Lee. The District Registrar says—"I have reason to know, from a family tradition concerning her, that her age was 111 years. During her youth she was gifted with wonderful bodily strength and activity, and as a girl used to follow across the country a pack of beagles, kept by a neighbouring gentleman. For forty years of her life she acted as a carrier of bread between Tipperary and Emly. She used to carry all her goods in a bag on her back, and thus heavily laden she used to traverse daily sixteen miles. Up to the last she was strong and in perfect use of her senses, and she walked to and from the parish chapel the Sunday before she died. She died quietly, with her great grandchildren around her." After all, there is no proof here that Nance Lee was 111 years, the family tradition notwithstanding. The best evidence that she was aged is in the fact of her having witnessed her great grandchildren. Had Nance married young, from 16 to 20, she might easily have lived to see her great grandchildren long before she reached the age of 100.

In Ballinasloe, Laurencetown District, sanitary matters are very bad, and the new Public Health Act seems as a dead letter.

In Ballinrobe W. small-pox of a bad type appeared, but to prevent it spreading, 1,000 persons were vaccinated, with beneficial effect.

In Ballinrobe, Cong District, small-pox was also kept in subjection by vaccination and re-vaccination, more than 700 being subjected to the latter process during the quarter.

In Ballinrobe, Hollymount District, small-pox appeared in a most virulent form, in several cases attacking persons who before had the disease from inoculation, though curiously sparing persons who had been vaccinated living in the same house. Many aged persons were carried off by pulmonary diseases, the death of one woman being registered at 106 years.

At Castlebar, Balla District, small-pox of a malignant type caused 86 deaths. Inoculation is carried on to a great extent in the district.

In Galway, Oranmore District, bronchitis was very general, the aged and infirm being cut off principally. Among the deaths registered here was one at 100 years, and others varying from 80 to 98.

At Killala there was an epidemic of typhus, and in other portions of the district fever of a malignant type.

In Loughrea, Athenry District, small-pox of a malignant type appeared.

At Oughterard, small-pox was also prevalent, but vaccination and re-vaccination were resorted to with good effect.

At Tubbercurry the same disease was prevalent, and similar treatment adopted.

At Tuam both small-pox and measles were prevalent, and the District Registrar says—"If a compulsory power of removing infected persons to hospital were added to the Sanitary Act, it would be a great check to the spread of the disease, if acted on vigorously." If we are not mistaken, this power exists in connection with the Public Health Act.

The inhabitants of Carrick-on-Suir, we are told, are inclined to carry out the provisions of the Public Health Act, but the state of their dwellings and the absence of requisite places of accommodation render the enforcement of the law difficult. The poor need to be helped by the sanitary authorities of the town.

In Waterford the general health of the district has not been good during the quarter. Nine cases of typhoid fever were reported in one house.

At Youghal, in part the new Sanitary Act is reported to be working well. Several cases of typhus fever were reported, 8 occurring in one family.

In Cork, in the Ballincollig District, dangerous nuisances still exist, no steps being taken for their abatement. In several other districts in Cork, nuisances are reported, and typhus and typhoid.

Of Dingle we have this picture—"In a great number of houses through the district there is no regard for sanitary arrangements. Pigs are very generally kept in the houses, greatly to the prejudice of decency and health, and to this habit is most certainly attributable the filthy and squalid condition, and too often the deaths, of children forced to dwell in close companionship with such filthy brutes. Two brothers, fine young men, aged respectively 18 and 21 years, died of fever within five weeks of each other. Their deaths were distinctly traceable to the unwholesome state of the house in which they lived. The whole county is deplorably ignorant of the necessity that exists for sanitary improvement." The pigs or the country never got such a bad character before. Think of it, Kerry men! To call the pigs "filthy brutes" and the most classic countrymen in Ireland "deplorably ignorant!" This District Registrar had better mind what he is about in future. We fear, however, there is too much truth in the Registrar's statement, as far at least as ignorance on sanitary matters is concerned.

In part of Killarney the Beautiful, typhus of a severe type during the last quarter was prevalent, but patients, as a general rule, went into hospital. The sanitary condition of the lanes is not improved since the working of the Sanitary Act, and overcrowding is common and productive of the fever.

The sanitary state of Tralee is far from good. At Castlemans, in this neighbourhood, a great portion of the population live on the slope of a mountain, and make dung-pits and cesspools in front of their houses, which intercept the drainage of the hill-side, the lower dwellers of course suffering for the sins of others as well as for their own sins—fever outbreaks, of course, being the results. Other parts of Tralee suffer from the want of a proper water supply, the present source being through a few pumps, nearly all of which have been condemned.

The above is but a summary of the sanitary state of some of the principal towns and villages throughout the country during the last quarter. We could have supplied several more instances nearly similar, but enough has been brought forward to show the still backward state of sanitary knowledge among the people in the country districts of this island.

#### CATHEDRAL CHURCH OF ST. CANICE, KILKENNY.

THE Cathedral of St. Canice, which majestically groups with the more venerable Round Tower adjacent, is one of those numerous ecclesiastical structures in which we have evidence of the architectural tastes of the Anglo-Normans at the period of their invasion of Ireland. This Cathedral had its commencement in the first quarter of the twelfth century, on the site of an earlier church, the foundations of which were brought to light some years ago, traces of the characteristic Hiberno-Romanesque detail of a previous building were revealed in several carved stones which were used as mere building material in the present structure.

The Anglo-Norman church builders permitted the still earlier Round Tower to remain; this, as a landmark of the remote past, carries us back, if not to the Pagan era of fire-worship as insisted on by some writers, at least to the period of the primitive Chris-

tian church in Ireland, as is suggested by authorities who argue for their theory with every show of reason.

The original founder of the present St. Canice's Cathedral was Bishop Hugh de Mafilton, as we are informed by Hanmer's Chronicle; and by the MS. catalogue of the Bishops of Ossory, his episcopacy dates from 1251 to 1256. The Cathedral was brought to completion "at great cost" by Bishop Geoffrey St. Leger, who filled the see between the years 1260 and 1287.

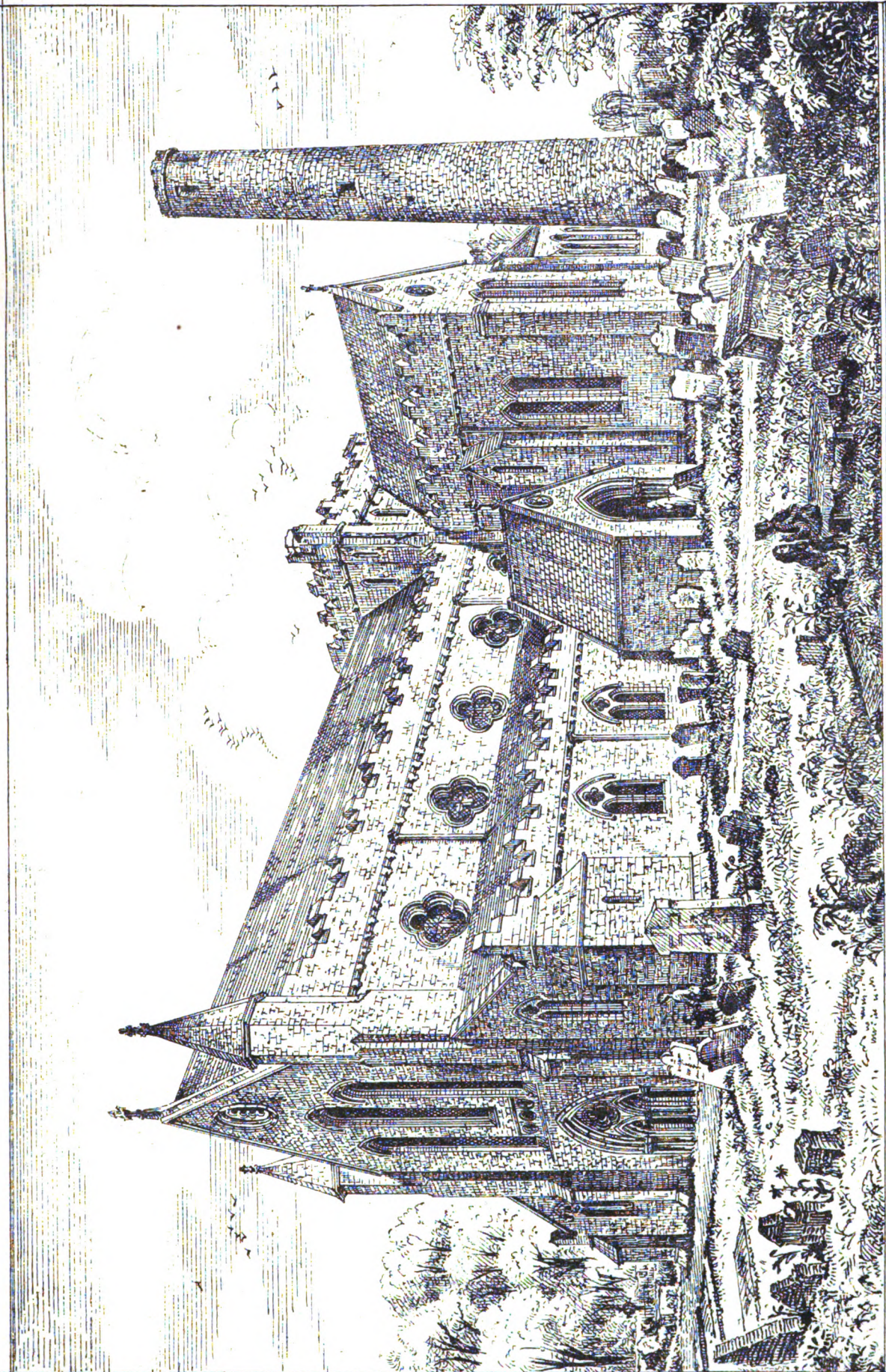
"The chaste unity of style which the building exhibits thus results from its having been commenced and brought to a completion during the prevalence of that most pure and graceful of the Gothic styles—the Early English or First Pointed."

Mr. G. E. Street writes as follows when describing Christ Church Cathedral, Dublin, with that of St. Canice's, Kilkenny:—

"These two churches possess certain features so peculiar, and so exactly like what we see in St. David's, Llandaff, and Wells Cathedral, and Glastonbury Abbey, that they must have been erected by the same troop of workmen, and from the designs of the same architect. The windows in the north aisle of Christ Church, the internal shafts of which are intersected by bands at very short intervals, are imitated closely in the north doorway of Kilkenny, and in a doorway at Strata Florida Abbey, in South Wales. The detail of the mouldings of the beautiful columns on the north side of Christ Church, with the singular treatment of the sculptured capitals, has the most curious similarity to the sculptured capitals of the nave arcades of St. David's, and to other capitals at Llandaff and Glastonbury. and in other respects the parallel holds good. These are all so unlike work seen in other districts, and so evidently the work of one school, that we may fairly state it as a fact which does not require documentary evidence for its support, that these two great Irish churches owe their design to architects whose first works are seen in Glastonbury, and who spread thence into Wales, and thence no doubt with the English invaders into Ireland."

From an interesting publication by the Rev. James Graves, B.A., which is now becoming scarce, we glean very comprehensive information as to the "History, Architecture, and Antiquities of St. Canice's Cathedral" prior to its late restoration: the story of its vicissitudes strikingly exhibits the calamities incidental to such structures in Ireland, at one period brought about by neglect, at another time by vandalistic reformers and Cromwellian settlers, and frequently inflicted by the hands of friends whose zeal to repair exceeded their discretion, good taste, or knowledge. Shorn of the stained glass windows which "formed its glory," and of its original tower and peal of bells, this grand structure still remained in spite of all, and presented its principal features, although much of its detail was injured and its original plan obscured by some unsightly changes made during various periods of its history. In the year 1863 the Dean and Chapter of the Cathedral undertook the restoration of the building to its original plan and purity of design; this work was superintended by T. N. Deane, Esq., architect, with the co-operation of the Rev. James Graves, whose knowledge of and interest in the Cathedral (already noticed) led him to





CATHEDRAL OF ST. CANICE, THE EYE ROUTE, KILKENNY - DIOCESE OF OSSORY - IRELAND.

Records of the Early Christian and Ecclesiastical Architecture of Ireland - By James F. M. 1874





anticipate the various original architectural features which had been built up or hidden by changes.

The ancient Cathedral Church having thus fallen into good hands has not shared the fate of many such structures: it is not modernised and disenchanted, but re-edified and carefully restored so far as funds admitted.

#### IRISH NATIONAL MONUMENTS.

IN the House of Commons on the 5th inst., Mr. Mitchell Henry said he had a question upon the paper which he had placed there at the request of the Archaeological Association of Ireland. The ancient monuments of Ireland were originally vested in the Boards of Guardians, and when they were removed from their care they were placed under the Board of Works in Ireland. He wished to ask the Secretary of the Treasury whether the gentleman who had been appointed to look after the preservation of these monuments had made the ancient architecture of Ireland a subject of previous study; and whether the Secretary of the Treasury had any objection to lay on the table a copy of the instructions on which this gentleman was to act?

In reply, Mr. W. H. Smith briefly said that Mr. Deane, the gentleman alluded to, who had been appointed to superintend the preservation of the ancient monuments of Ireland, had been recommended for the appointment by the Commissioners of Public Works in Ireland as being an architect of recognised ability and extensive experience, as also being well acquainted with ancient Irish monuments. There was no objection to lay the papers asked for on the table.

The information asked on behalf of the Royal Historical and Archaeological Association of Ireland is certainly not answered in the reply of Mr. W. H. Smith. Mr. Deane is, without doubt, an architect of recognised ability and experience; but it must be allowed that the general Irish public are not aware that our worthy architect has ever made the ancient architecture of Ireland a subject of previous study—or, in other words, that he is well versed in the history and architectural characteristics of our national monuments. Mr. Deane, however, may prove himself to be a very painstaking and conscientious custodian, and in the performance of his duties we do not think he will run counter to the instincts of Irish archaeologists and antiquaries.

#### LARGE AND SMALL FARMS.

THE views of large and small farmers may be summarised thus:—Experience teaches us that in all countries large farms are more productive and valuable than small. The agricultural returns prove, however, that the tendency of large farms has been to divert land from culture to pasture. House feeding creates a larger quantity of produce and manure.

The market gardens in the vicinity of great towns show that more crops can be obtained from the ground if more manure is used. It is an erroneous idea to bind the peasant to the soil, as generally you succeed in locating paupers without capital and farm, who are generally ignorant and discontented, and soon become the dupes of agitating knaves. Strikes of labourers really deter moneyed individuals from employing many workmen. It is admitted that, though the works usually performed by great companies might be more cheaply executed by single persons, these speculations would never have been made but by the co-operation of money holders. Look at railways, &c. The farming of our country could be better managed by a large co-operation of small and great capitalists, who would cultivate the land by machinery, worked as well by manual as by water, steam, and other powers, who would drain the land, provide shelter for the cattle,

and erect healthy habitations for the servants and work people.

It should be the duty of a State to encourage such companies who will sink on the soil the wealth of their shareholders, provide employment for the people, who will be better educated and better remunerated, and have healthier habitations near their work in the country than in town rookeries. The wealth of the people being sunk in the ground, the owners will live near to their property. These companies should be permitted to have the right to purchase out any opposing interest at the price of a Government-appointed valuator, because the interest of a few should be yielded to that of the community. \*

#### CIVIC LYRICS.—No. LXXXIX.

##### DAMMING THE LIFFEY.

Time—The Drainage Era.

Our Irish annals record the fact,  
In the days of our far-famed Drainage,  
There was a Nuisance Removal Act,  
And some water-works and a rain-guage.  
A Green-Branch Knight, in these good old days,  
When man was a very long liver,  
Was wont to walk down the Liffey's Quays,  
Saying—"Dam, oh! dam this river!"

The river was foul and full of filth—  
Well, that is its present-day picture!  
Then, as now, there was Corporate guilt,  
With great panic and public stricture.  
Schemes after schemes were proposed and stopped,  
Till our Times-serving chief most clever  
His plan from his library window dropped,  
Saying—"Dam, oh! dam the river!"

Our Knight he was not given to curse,  
So our citizens talked and wondered;  
Some said he needed a bigger purse,  
And that, for want of it, he blunder'd.  
I cannot say that the Knight was vexed,  
For cursing or swearing was never  
Indulged in by him, although his text  
Was—"Dam, oh! dam that river!"

Time rolled on, and the waters kept low  
In the Liffey; and in the centre  
No weirs were put up to raise the flow  
To the height where the sewers enter.  
Nothing was done; so the Green-Branch Knight  
Lived and died an intending giver,  
But his spirit walks our Quays at night,  
Saying—"Dam, oh! dam this river!"

CIVIS.

#### THE ATHENRY EPIDEMIC.

BESIDES the short statement in the last Quarterly Report of the Registrar-General of the prevalence of small-pox of a malignant type in this district, a "Special Report" on the subject has appeared in the last issue of the *Sanitary Record*, by "Our Own Commissioner." The detailed statement given by the writer is indeed very sad. The sanitary condition of the place is stated to be as bad as it can be, and that six or seven weeks ago there was no public water supply, a single pump giving at present the only supply. A sewage-polluted river and a few private wells of doubtful quality were all that the inhabitants had to depend upon. The "Commissioner" writes:—

"The houses in Athenry are not better than those of the surrounding country. They are generally sunk below the level of the streets, with but one room, and in some instances no window, and altogether of a most wretched description. The most remarkable street we have ever visited—and we have been in a great many queer places—is River-lane in Athenry. It seems that about twenty years ago the river was diverted from its natural course and turned into a mill-course. The bed of the diverted river was seized upon by squatters, who built therein the most wretched hovels. We visited some of these, and had to reach them by walking ankle-deep in filth. There was small-pox in four of these houses at the time of our visit. The occupiers pay no rent, and cannot be removed except by closing the houses as unfit for human habitation. But then nearly all the houses in Athenry are unfit for human habitation, and the Artisans' Dwellings Act only extends to towns of 25,000 inhabitants. What, then, can be done to house the people in Athenry?"

It may be said there is no sewerage worthy of

the name, although at the present time an attempt is being made to drain the town. The houses have dung-heaps at the rear, and slops are usually cast into the street. A most remarkable system of excrement-disposal is in use at many of the houses, which is as follows. A quantity of heather is cut from a neighbouring bog, and heaped up against the house, generally close to the window (if there be one). Upon this heap of heather all excrement, slops, &c., are cast. The heather retains, as a sponge, most of the material cast upon it. This accumulation is carried on for about a year, and, when the spring arrives, the valuable heap is sold for manure to a neighbouring farmer. Here is a primitive method of sewage-utilisation!"

The writer traces the history of the distribution of the small-pox in Ireland from the year 1864 to 1874 inclusive, and treats of the question of vaccination, inoculation, the present outbreak, and the means taken to abate it by providing hospital accommodation. He speaks highly of the energy and capacity of Dr. Leonard, under whose charge all the small-pox patients have been in Athenry. A great deal of distress appears to have been occasioned by the existence of the epidemic, the farmers and others refusing to employ the poor people from the town, through a wholesome dread of the disease. The shopkeepers have also suffered much, their usual customers getting their supplies from elsewhere. Even the parish church was deserted, the congregation being reduced to a few worshippers.

The "Commissioner," after discussing the subject of the rise and prevalence of the outbreak in detail, arrives at the following conclusions:—

1. That the epidemic of small-pox now existing in Athenry is a portion of an epidemic which has spread over the north and west of Ireland.
2. That the spread of the disease in the west of Ireland has been much accelerated by inoculation.
3. That the disease was directly introduced into Athenry on March 1, and became diffused after March 17.
4. That the chief cause of the diffusion of the disease in Athenry was the want of hospital accommodation, which was not provided until two months after the outbreak of the disease.
5. That the sanitary condition of Athenry is such as to favour the spread of any zymotic disease.
6. That the epidemic cannot be attributed to any general neglect of vaccination, although there appears to have been less attention to vaccination in some years than there should have been.
7. That vaccination has been very effectual in protecting those vaccinated from the effects of the small-pox contagion.

We trust this Athenry epidemic will be a lesson not only to the Loughrea sanitary authority, but also to all other rural sanitary authorities. Firstly, to keep their districts in a sanitary condition; secondly, to enforce vigorously the Vaccination Acts; thirdly, to encourage vaccination; and, lastly, to provide sufficient hospital accommodation near at hand, and always ready for the admission of the first cases of contagious zymotics.

We have often advocated the establishment of cottage hospitals in small towns and villages; and if a cottage hospital had existed in Athenry, it would probably have saved the district from a great portion of the present outbreak, and consequently saved the ratepayers' pockets, and prevented the great loss and injury which the town has suffered."

We also have advocated the establishment of cottage hospitals, and ambulances for the conveyance of the infected, both in town and country. The report from which we have quoted should be read attentively, and we can commend it to everyone. Some few slight errors have crept into it, if we are not mistaken, and two or three names and places are not printed in their proper form. The value of the report, however, is not lessened on that account.

THE PATENT LAW AMENDMENT BILL.—At a meeting of inventors, patentees, and others interested, held at 2 Nassau-street, on the 30th ult., Mr. H. A. Ward in the chair, and Mr. J. A. Fahie acting as secretary, a petition to Parliament praying alterations and amendments in certain clauses of above bill, was agreed to, and ordered to be forwarded to Sir A. E. Guinness, Bart., for presentation to the House of Commons; and that the Hon. D. R. Plunket and Mr. A. M. Sullivan be requested to give it their support.

## MICHELANGELO.\*

(Concluded from page 184.)

STARTING from Peruzzi's plan, San Gallo made many alterations and additions, notably a restoration of the form of the Latin Cross. He abolished the semicircular columnar screens in the apsidal terminations of the tribunes and transepts, which Raffaele and Peruzzi had maintained from Bramante's original proposals; and he still further increased the four great piers under the dome. He diminished the importance and size of the four angle sacristies, at a considerable loss of external effect. The addition of nave or atrium, which he proposed, was to have served as a vestibule connecting two bell towers, and between the latter a balcony was provided, from whence the Pope could give his solemn Easter benediction "*urbi et orbi*."

In the exterior design, San Gallo introduced a multiplicity of parts, in opposition to the colossal manner of design favoured by Bramante, and subsequently followed by Michelangelo. His elevation shows columns upon columns, instead of a single order, as previously intended. The dome was so encumbered with details that all grand simplicity of outline was lost, and the lantern became a principal feature, instead of an accessory. The bell towers were designed in a corresponding manner, in fourteen stages, with small spires, which recall a type common in Northern Italy.

San Gallo, indeed, was imbued with Gothic, rather than with classical sympathies, and his design seems to have been based on his recollections of Siena and Pisa, rather than on any bold resolution for an original treatment of the problem before him.

I think, however, we should pause before we join too hastily in the chorus of disapprobation which has been lavished on San Gallo. We have seen that he was more of an engineer than an architect, and the details of his design will not bear the criticism of a pure taste. The plan, moreover, is so deficient in simplicity, that its effect, if executed, must, I think, have been greatly confused, while it would have detracted from the dignity of the great dome. But it is difficult to condemn altogether the principle which San Gallo sought to apply, that of a variety of parts of moderate size, as such a principle, when carried out on a great scale, and with good judgment, will give dignity and grandeur to the mass.

We all know how common a complaint it is that St. Peter's, as now existing, does not impress the spectator with an adequate idea of its size, and this must be considered a severe criticism on a work of architecture. It is quite true that proportion is the first necessity in our art, and that, speaking generally, we are charmed by the proportions of Michelangelo's masterpiece; but a scale, and an enhanced effect would have given to these proportions, if the details of the composition had been less colossal, and the parts more numerous, and more interesting.

Michelangelo had, as we know, passed through no architectural training. He delighted in the majestic and sublime, and sought his inspiration in a system of grand simplicity, with a carelessness of details, which has proved a snare to lesser minds. He condemned San Gallo's design *in toto*, and his influence with Pope Paul III. was sufficient to induce the latter to pause, before giving his consent to its execution.

San Gallo died in 1546. Michelangelo was at once appointed his successor; and was called upon to advise the Pope, as to what should be done. He frankly explained his objections to San Gallo's plan, and censured its complexity. He predicted that the interior would be dark and gloomy; he objected to the variety of columns, pyramids, and points, exhibited by the elevation; and declared that the whole design was a tasteless mixture, giving neither the simplicity of ancient classical taste, nor the picturesque variety of more modern examples.

This criticism sealed the fate of San Gallo's plan, and Michelangelo undertook to produce a model in opposition to it, to illustrate the principles which he enunciated.

San Gallo's model was an elaborate structure, 28 ft. long, by 18 ft. wide, and had cost 4,000 scudi. It was characteristic of the energy of Michelangelo, then in his seventy-third year, that in fifteen days, he was ready with his model, executed at a cost of only 25 scudi.

Before examining the plan of Michelangelo, it should be remarked that it was influenced by two causes,—economy, and the impatience of the Pope. In deference to these considerations, Michelangelo declared that the adoption of his design, instead of that of San Gallo, would save 800,000 scudi, and fifty years of time.

We may further see in Michelangelo's proceedings a new illustration of that noble fearlessness, and independence so characteristic of his nature. He looked upon Bramante as his enemy, but he never wavered in his homage to him as an architect. A pettier mind might have sought consolation, if not revenge, by deviations from the proposals of his rival; Michelangelo, however, had but one idea,—the perfection of the work on which he had entered "for the love of God." He, therefore, adhered to the general principle of Bramante, as regarded the central feature of the building, and applied himself to give due effect to its design.

Michelangelo's plan has been to so great an extent superseded by the architects who completed his work, that you will probably not be sorry to have an opportunity of examining it, and of comparing it with those of his predecessors, and more particularly, with that of Baldassare Peruzzi.

He adhered, as may be seen, to the adoption by the latter of the Greek Cross, though, for local reasons, he thought it advisable to give external importance to the western end, by the addition of a portico, and to make all the entrances at this end of the church. Actuated doubtless by financial considerations, he suppressed the apsidal terminations proposed by Bramante, and he diminished the width of the arched nave, tribune, and transepts.

It must, I think, be concluded that these changes were not improvements.

Magnificent as is the dome of the present church, the three upper arms of the cross are wanting in interest, and variety of light, and shadow. If the arches of the chevet of one of the best Mediæval cathedrals were to be walled up, some idea might be formed of the loss which St. Peter's has sustained by the withdrawal of any corresponding features.

The alteration of the general proportion of the arches was also, as it seems to me, injurious to the general effect. It arose, no doubt, from the necessity for increasing the size of the four great piers, without adding to the dimensions of the dome. Professor Cockerell has called attention to this departure from Bramante's design, and I have taken from him, the explanatory diagram before you.

The consideration of this question brings out the opposing principles of Classical and Mediæval design. The former aimed at width, and spaciousness of effect; the latter at height, and variety of features. At St. Peter's, the dimensions are so vast, that the alteration of the broader proportion of Bramante to the narrower section executed, was not of serious consequence, although it must be regretted; but at our own St. Paul's a similar narrowing of the proportions of nave, and transepts has been disastrous.

In Bramante's section, the height of the arch as compared with its width, was as 16 to 10, or a little more than one diameter and a half. In the reduced section of Michelangelo, the height became as 19 to 10, or all but two diameters high; and at St. Paul's Sir Christopher Wren has given us arches of 2½ diameters in height, being a proportion of 2½ to 10.

All must, I think, admit the inferiority of St. Paul's to St. Peter's as regards internal effect; and although, in discussing the causes

of this inferiority, there is something to be said about architectural details, I venture to think that the chief defect of the interior of our own cathedral lies in its proportions, and that this circumstance will prove the most formidable difficulty, in any scheme for its decoration.

But to return to St. Peter's. It was necessary to diminish Bramante's plans, and so to lessen the burden on the public exchequer; and in carrying out these instructions, Michelangelo must not be held answerable for all the consequences. Adhering steadfastly to the idea of the dome, he produced a design which, while realising the original boast of raising the Pantheon in the air, nevertheless departed from its avowed model, in some important particulars.

Bramante had apparently proposed to adhere more exactly to the precedent he relied on. His design shows the Pantheon dome almost literally, displaying only a small portion of its hemispherical form above its abutments. In actual execution, far less of the latter would, of course, have been visible than can be indicated by a geometrical elevation, and it would have been certainly very inferior to the present dome, especially when seen from the west end, with a long intervening nave. San Gallo followed Bramante in his preference for the flatter section, and this is one reason why his dome fails in dignity.

It was reserved for Michelangelo to show the vast difference between following the principles of preceding masters, and a slavish adherence to particular designs. He boldly determined to depart from the section of the Pantheon, and he not unnaturally turned his eyes towards his native city, and dwelt on his recollections of Brunelleschi.

He had always been an admirer of the genius of the latter, and the constructional expedient adopted by him, of two domes, connected with ribs, seemed to give him the opportunity he sought of increasing the external altitude, without injury to the proportions of the interior.

Here again, however, Michelangelo was no ordinary copyist. The Florentine dome is octagonal in plan, but this figure Michelangelo discarded, and founded his dome on a circular base, surrounded with columnar piers, or buttresses. He abandoned the circular section of Bramante and San Gallo, for one of a slightly pointed character, making the external dome sharper than the inner one. He admitted a single order only into the external composition, in broad contradistinction to the design of San Gallo.

The piers surrounding the tambour, sixteen in number, give strength of construction, with a charming effect of light and shade, though it may perhaps be doubted whether in this last particular the continuous peristyle, proposed by Bramante, and carried out at St. Paul's, is not superior in beauty.

It is difficult to surmise, however, how Bramante could have carried his lantern, and we all know the expedient to which Wren felt obliged to resort for this purpose. Michelangelo entirely conquered the difficulty, by following the cellular principle of construction, taught us in the first instance by Nature, and now so familiar to modern engineers.

He intended to surmount the piers with statues. They have not as yet been carried out, but I was glad to notice, in some recent news from Rome, that the present Pope was taking steps to realise the original design, by the addition of these important features.

In the dormer windows of the dome we have an instance of an exception to the usual grandiose character of Michelangelo's designs. It is an exception, however, which I venture to think illustrates the justice of what has been already said upon this point. The dormers are forty-eight in number, and are carefully graduated in size, diminishing in accordance with their height. There can be little doubt that they give a scale to the dome, which would perhaps otherwise be wanting; and that they contrast pleasingly with the piers and details with the story below.

\* Professor E. M. Barry's third lecture at Royal Academy, March 8th.



Michelangelo seems to have given an amount of study to the design of the dome which he was not ordinarily wont to bestow, and the result has been the production of a work which has been more generally admired than almost any other architectural masterpiece. It is, I think, a testimony to the appropriateness of its details, that they bring out the full beauty of its proportions, so that we do not hear the same complaints of want of apparent magnitude, as regards the dome, which have been so often urged against the interior of the building.

Grouped around this noble cupola, Michelangelo has given us four smaller domes, at the angles of the cross; but he dispensed altogether with the great bell-towers, provided by San Gallo, for the west end. He did not, however, contemplate such an elevation, as now exists. Had he done so, he might probably have felt the necessity for something to mark the corners vertically, and to give dignity to the front, as has been done so successfully by Sir C. Wren, when dealing with a similar problem.

The entrance front, as now existing, was executed by Carlo Maderno, after the death of Michelangelo. It is not only poor and ineffective in design, but it also interferes seriously with the view of the dome. Peruzzi's and Michelangelo's objections to a Latin Cross, for this reason, have consequently been abundantly justified, as you will see from the diagram before you of St. Peter's, as it is. I will remove the elevation of the existing front, and you will then be able to perceive how much more fully the dome would have been appreciated, if Michelangelo's proposals had been carried out.

Considered as a whole, the plan of Michelangelo, while more simple, appears to me less architecturally effective, than that of Peruzzi, and it may be especially suggested, that the interior details, suppressed from the latter, might have gone far to confer on the interior of St. Peter's that gradation of scale, and variety of effect which we feel to be desiderated.

In the exterior, the want is felt of the projections, and of the pleasing balance of rectangular, and circular lines, which distinguished Peruzzi's plan. The connexion, indeed, between the curved projections and the angles of the design, in the existing building, must be considered faulty; the combination of circular, rectangular, and canted lines is also inharmonious, and disturbing; so that, all things considered, the exterior of St. Peter's must yield the palm to its lesser rival, and offspring, St. Paul's.

The cupola, however, was especially Michelangelo's own. Often more or less copied, it has never been surpassed; and those who have once seen it, will ever connect Rome with Michelangelo,—and Michelangelo with Rome.

When the great artist accepted the office of architect of St. Peter's, his increasing infirmities led him to resign the practice of painting and sculpture, and to devote himself to the crowning achievement of his career. His loss of Vittoria Colonna, so soon after his appointment, deepened the solemnity with which he regarded life, and drove him, so to speak, more and more within himself.

He had made powerful enemies, for it was not to be supposed that the rejection of San Gallo's model would not grievously offend the many influential friends of that artist.

Michelangelo was now more than ever alone, for Paul III. died in 1549, and under his successor, Julius III., he had to meet intrigues, detractions, and accusations, of the most paltry kind. He was, however, supported by Julius, who died in 1555, and was succeeded by Marcellus, who only survived him one month.

The new Pope, Paul IV., admired and trusted Michelangelo, but deprived him of a paid office which he had long held at the Papal Court, and by reason of which, he had been enabled to declare his resolution to accept no salary at St. Peter's. No petty slight, however, moved the noble old man. "If I should leave St. Peter's," he wrote, "I

should occasion the ruin of this great monument, and this would be to me an eternal shame, and an unpardonable fault."

Sad and solitary, he toiled at his work. The reigning Duke Cosmo of Florence left nothing undone, to induce him to return to his native city, to position, affluence, and honour; but he stood firm, and prayed that "for the love of God, and of St. Peter, his highness would not insist on the request for his return to Florence." When at last Cosmo visited Rome, during the last year of Michelangelo's life, he did homage to the genius so soon to be lost to the world, and made the artist sit down beside him, on equal terms.

Michelangelo had, however, not lost all of his old vigour, and, though aged and feeble, was even now capable of showing that he was not to be trifled with, for in 1560 he wrote to Cardinal de Carpi, who had interfered with his work, that he would in consequence resign his post. This the Pope would not allow, and Michelangelo replied to those who accused him of dotage, by the production of the model of the cupola.

He was now in his eighty-seventh year, and, less happy than Wren, he did not live to see the completion of his work. It was not until 1591 that the top stone of the cupola was placed in its position, after receiving the benediction of yet another Pope—Sixtus V.—to the sound of trumpets, amid music, and rejoicings, in which the great artist had no part.

Michelangelo died in 1563, holding, to the last, his office as architect of St. Peter's. His mighty spirit yielded only to extreme old age. He was in his ninetieth year, when he passed away, expressing his simple will, "My soul I resign to God, my body to the earth, and my worldly possessions to my relations." He had previously intimated a wish that his body should be taken to Florence, his dearly-loved and native city.

The funeral ceremonies were, however, carried out at the Church of the Apostles in Rome, and opposition was feared to the removal of the remains. All the Florentines in Rome had attended the funeral, and the Florentine Ambassador had received especial instructions from his Government, as to his conduct. To prevent difficulty, the coffin was taken out of the gates of Rome as merchandise, and after thirty years of voluntary exile, all that was mortal of the "divine" Michelangelo, was again in Florence. The coffin was placed in the Church of San Piero Maggiore, and in the following day, as the shades of evening deepened, a great concourse of artists, young and old, might be seen approaching the church. In solemn silence, and with torches lighted, they bore the corpse to Santa Croce, the Westminster Abbey of Florence.

But though the preparations had been secret, the people had found them out; and with the true popular instinct of veneration for noble qualities, had gathered in their thousands; and followed quietly and mournfully the procession of the artist. Such indeed was the pressure at Santa Croce, that it was impossible to close the tomb, till all had taken a last look at the departed master, when they gradually dispersed. This was on the 11th of March, 1563; and it was not until the following 14th of July, that more elaborate funeral obsequies were celebrated, with great pomp and magnificence, by the Academy of Painters, Sculptors, and Architects, under the auspices of the reigning Duke.

We have now briefly traced the career of this wonderful man, patriot, artist, and poet. His works live after him, and by them he must be judged. Amidst all his artistic work, he ever expressed an ardent admiration for Italian poetry, and it had been one of his most cherished wishes to have erected a monument to Dante.

Simple and frugal in his personal habits, he lived only for art. A severe critic of the works of others, he was equally fastidious as regarded his own. In times of the grossest corruption of morals, he was a model of uprightness. Fearless,—and at times overbear-

ing,—in the enunciation of his principles, he never stooped to deceit or meanness. Supreme in every department of art, he has enriched the world, and left an undying obligation on posterity.

Need I say more? Time would fail me for half that might be suggested to you by way of conclusions from the story I have endeavoured to tell. I shall have performed my task ill, however, if from a consideration of the life of Michelangelo, you, as artists, can derive no advantage, and can find no encouragement.

#### BOOKS RECEIVED.

*English Country Houses—Sixty-one Views and Plans of Recently-Erected Mansions, Private Residences, Parsonage Houses, Farm Houses, Lodges, and Cottages; with Sketches of Furniture and Fittings; and a Practical Treatise on House-Building.* By William Wilkinson, Architect, Oxford. Second Edition. London and Oxford: James Parker and Co. 1875.

THIS book deserves a more careful and discriminating notice than what we have now time to bestow upon it. To begin, it is admirably got up, and, though all that might well be desired in externals, it is, unlike many other works on the same subject, not got up to sell, for the material within is good, both in the subject-matter of the letterpress and in illustration. The views are executed by the photo-lithographic process, and are some of the best of the kind yet executed. There is a clearness and sharpness about it also in the plans that accompany them that tell much in their favour, and bespeak a wider application of the art for book illustration in connection with the architectural, engineering, and cognate branches.

The "Practical Treatise on House-Building," that forms the introduction of this book, is sufficiently exhaustive for the purpose intended, and the constituency appealed to. Good advice is given on the nature of the soil, the drainage of the ground, the foundations, the building materials, water supply, warming, ventilation, finishings, fittings, &c., as also the best modes of procedure by persons about to build houses of the class described.

The views comprise several good examples of domestic architecture in England, scattered over a number of counties, Gothic and Tudoresque in spirit, but exhibiting diversified treatment in design and arrangement. They are well suited for an English landscape, and would equally answer in this country. Different views are given of the buildings, with the plans of the various rooms, all laid down to scale; and, though the plans are not figured, no difficulty need be experienced on this score. The cost of each house is given—at least its cost in the year it was constructed,—but as building materials have increased in price, allowances will have to be made. Some of the plans of the mansions, parsonages, and farm houses, exhibit a capital arrangement, as also the entrance or gate lodges.

Among the cottage designs and plans there are also some excellent ones. The "pair of cottages" at Black Burton, Oxfordshire, built for His Grace the Duke of Marlborough, shew a plan exhibiting some good advantages. It can be adopted for a pair or a row, as the author says. Each cottage has a living-room, scullery, pantry, and one bedroom on the ground floor, and two bedrooms above. The ground-floor bedroom is found, in some cases, very serviceable for aged parents who may be living with a married son or daughter. At times, when only two bedrooms are required by the family, the ground-floor bedroom can be used as a sitting-room, dressmaking-room, or shop. There is a lean-to scullery uncelled, useful for storing tools, &c. This plan has been adopted, we are told, in several other places. The cost of a pair varied from £300 to £380, including out-buildings not shown on the plan.

In respect to "Country Cottages" the author has prefixed to his work some judicious remarks, which we heartily subscribe to. He says:—"No greater benefit can be conferred upon the labouring population than that of providing them with decent and healthy dwellings. It is the first step towards the improvement of their social condition. So long as sleeping-rooms are common to the older children of both sexes, and there is but one room to serve as living-room and for the performance of all the household work, it is useless to expect any social improvement. The necessarily uncomfortable condition of such homes drives the men to the more cheerful quarters of the ale-house, where the money required for the family is spent in drink. The poor ill-fed, ill-clothed wives have no bright prospect to look forward to, and pass their lives in an ineffectual struggle to make the house a home clean and attractive to husbands and children. Children reared with such surroundings can but grow up without sense of decency and self-respect, and likely to lead the same improvident lives."

With the British landscape studded with such farm-houses, parsonages, lodges, and cottages, as our author furnishes as an accompaniment to the mansions and private residences of the great landed proprietary, social, moral, and material improvement would, indeed, be visible too.

In the five final illustrations given in this work, the "views" of the "interiors" of a hall, dining-room, drawing-room, library, and bed-room, with sketches of the furniture and fittings, are very fine, and bespeak much for the judgment and taste of the architect.

"English Country Houses" is a book well fitted for the library of English and Irish country gentlemen. If they wish to build anew, they will find a design and plan that will meet their views. Equally so, if they wish to enlarge or to improve their estates by building farm-houses or cottages which are not a libel on civilised life, but suited for the homes of a comfortable, industrious, and moral people.

We may take another peep into this book on an early occasion.

## ROADS AND PAVEMENTS—

THEIR CONSTRUCTION, WEAR AND TEAR,  
SANITARY ASPECTS, ETC.

A VERY valuable report has been the result of the labours of the committee appointed by the Society of Arts *in re* the condition of the surface formation, paving, and cleansing of the streets of the London metropolis, as influencing the cleanliness and health of the population, its circulation of passengers and goods, and the extent to which those conditions may be improved by the application of sanitary and mechanical science. Although the report deals particularly with the roads that ramify the metropolis of the sister kingdom, yet the information is eminently useful, and cannot be too widely known. We purpose, therefore, to print portions of it in each issue of this journal until completed, omitting only so much of the subject as may be of small moment as far as our constituency on this side of the Channel is concerned:—

### ON THE SANITARY SCIENCE APPLICABLE TO STREET PAVING AND CLEANSING.

The sanitary effects of street pavement and cleansing were examined in England, in part, under the sanitary inquiry of 1842; in part by the Health of Towns Commission in 1844, by the Metropolitan Sanitary Commission in 1848, and by the first General Board of Health in 1850. It was also examined about the same time by hygienists in France. But the effects of different conditions of street and road surfaces on the public health, as a branch of sanitary science, have not hitherto been comprehended in any instructions to sanitary officers, and have yet to be

made known and appreciated in this country.

The first inquiries related to the conditions of the surface dirt of the streets. This appeared to consist chiefly of horse dung combined with abraded granite and abraded iron in proportion to the traffic. In the chief thoroughfares from three to four loads of horse dung per mile were taken up daily, when the streets were well swept. From the number of horses kept as well as from the quantities of dung removed, it was then estimated that the total quantity of dung deposited in the streets could not be then, and it can scarcely be less now, than 1,000 tons daily in the metropolis. A great part of the filth accumulated on the skin must therefore be pulverised horse dung.

The domestic fire acts as a pump, which draws in the air of the street, and with it the filth of the street, for deposit on the person, clothes, and furniture. A lady living near the drive in Hyde Park, stated that she could write her name twice a-day on the dust on her piano, that is to say in summer time, when there are comparatively few fires and little soot. The rate of accumulation on the skin may be observed by well-to-do people, who have to wash their hands and faces two or three times a-day to maintain cleanliness; and as to clothes, by an increased rate of expense of washing. The estimated washing bill of the metropolis is upwards of £5,000,000 per annum. As to the special sanitary effect of the chief ingredient of the filth of the streets, it is found that the gaseous products of putrid and decomposed horse-dung partake in a greater or less degree of the pernicious character of those from the human faeces. In urban districts, which have been well drained, with proper self-cleansing sewers, and freed from emanations from them, fever, nevertheless, has been found to lurk in those quarters where the surface paving and the surface cleansing is bad, especially amongst the children who are much out in the streets, and who, from their habit of playing with street dirt, and their lower stature, are more within the influence of low-surface emanations than adults. On the other hand, the extension of impermeable paving alone, other conditions as to drainage, &c., remaining the same, has been attended with a marked reduction of malarious disease. The greater part of the dirt deposited on the skin, which constitutes the visible filth and squalor of the lower class of the population in towns, is considered to be chiefly composed of street or road mud, or of pulverised dung. The effect of the deposit of dirt on the skin is displayed by the effect of its effectual removal by regular ablutions with tepid water. This has been marked in the instance of some ragged schools, where the assemblage of dirty children created an atmosphere so offensive, and attended by so much illness to the teachers as well as to the children, that for their protection, as well as for the protection of the teachers, it was found necessary to have recourse to ablution with tepid water as a means of prevention, and thus the condition of the atmosphere was considerably freshened, the health of the children and of the teachers considerably improved. As a rule in sanitary science, the death-rates of children are considered the most important tests of general local sanitary conditions, as children are the least affected by occupation, and the most kept within those conditions.

The effect of skin cleanliness on health has been most marked on numbers, in children's institutions, where sanitary results may be the best discriminated. In some of these institutions, in old buildings, the death-rate had been regularly for years about 12 per 1,000; but a removal of cesspools, an improvement in the drainage, and better ventilation, producing what may be called comparative air cleanliness, were attended by a reduction of the death-rate to 8 per 1,000. The next step in sanitary improvement was to effect skin cleanliness by the introduction of regular, complete head to foot ablution with tepid water, and this was attended by a further reduction of the death-rate from 8 to 4 in the 1,000. Other instances gave as high a value

as one-third as the result due to the sanitary efficiency of complete skin cleanliness as a preventive. One noted example of the combined results was presented in the instance of a children's institution at Limehouse, where the death-rate amongst the children was not above 4 in 1,000, or about one-third of that of the children of the general population of the same neighbourhood. During the prevalence of a severe epidemic of cholera, which ravaged the population of the neighbourhood, not a single case occurred in that institution. In that, as in other children's institutions, the children had, too, a paved, dry, and well-cleansed courtyard to play in. If they had been let out to pass their play-time on the adjacent ill-cleansed and dirty streets, and had been subjected to the same amount of dirt on the skin, and also on the clothes, and to the emanations from excrement-sodden surfaces, and had been as little washed as the other children, there is no doubt they would have participated in the common excessive sickness and death-rates. In those institutions, variations in management, attended by variations in cleanliness, in the cleanliness of the clothes, as well as of the skin, are observed to be attended by variations in the sickness and death-rates. Coal soot is, undoubtedly, contributory to the skin is dirt. But the rural cottages in the northern districts, where coal is cheap and the grates bad, do not appear to possess much advantage, if any, as respects the amount of smoke and coal dust over the dwellings of the wage classes in London; but as they have an immunity from street dirt and dust, the children are visibly less dirty than the urban children, and have considerable advantages in reduced sickness and death-rates.

In summer time the consumption of coal and the production of soot is greatly below what it is in winter, but no great difference is observed in the filth and squalor of the children of the wage classes inhabiting the ill-paved and ill-arranged urban districts.

In the urban prisons, where the prisoners have to walk upon clean and dry paved yards, and are subjected to enforced personal cleanliness, notwithstanding their comparatively low diets, and other depressing causes, they have an immunity from epidemic visitations, and a very high degree of health, far exceeding the general outside population.

In Paris, where wood chiefly is used for fires, and very little coal, and where there is comparatively little soot—improvements in street pavements, and in street cleansing by the use of water, have, according to the reports of hygienists, been attended by great reductions of cases of fever, and improvement in the general health.

People who are nice in the air they breathe, as well as in outward personal cleanliness, will let as little as possible of street air enter their houses, except through screens of the finest wire gauze as window blinds, as did our late member, Mr. Appold. He stated that in the city he found it necessary to have his screens washed every day, to prevent their being clogged up, and that on foggy days they were choked up in three hours. Parliament, for its own protection against the common street air, has had recourse to science to free that air, as well as might be done, from its grosser impurities. The late Dr. Reid, to whom the task was first confided, proposed to avoid the street air, by drawing down less impure air from the superior strata at the top of the two towers—the Victoria and the clock tower;—but he found even then that at times Parliament might be exposed to polluted currents from the tall chimneys of manufactories in the neighbourhood; one a bone-boiling manufactory, another a muriatic acid manufactory. Being driven back for a supply to the street air, he resorted to various contrivances to screen it, and at times to wash it. Appliances for this—screens of fine cambric and means of washing the air—are now applied under the direction of Dr. Percy. On the establishment of a sugar refinery at the east of

London detrimental results were avoided and superior results were obtained, by screens and careful manipulation to purify the street air for the process.

The importation of granite is upwards of six hundred tons per annum, to supply the abrasion and wear of the streets, besides large quantities of flint and other cheaper stones obtainable near London.

The special effects of insoluble matter as detritus are the most clearly distinguishable in continental towns, where there is very little traffic, and little dung dust; but where there is a great deal of sand or inorganic dust, the excess of this condition is attended by an excess of disease of the respiratory organs. The influences of particular sorts of street and road dust are instanced by the effect of constant exposure to them in highly concentrated states;—as of abraded granite, by the diseases of the constant workers in granite in Scotland; of abraded iron (which is found in considerable proportions in streets of great traffic) by the diseases of the Sheffield knife-grinders and metal workers;—of powdered flints, which are extensively used on metropolitan suburban roads, by the special effects of constant working in flint dust in the potteries, where it is known that it cuts short the lives of robust persons in an average of twelve years. Dr. James Sutherland, the Army Sanitary Commissioner, thus describes the production of flint spiculæ, which are peculiarly irritating. In certain districts of the metropolis “the road-making consists of emptying and spreading ordinary flints, one of the most brittle of all materials. The first heavy cart which passes over it fractures the flint, and with moderate traffic, as for instance, on the roads leading up to the Crystal Palace,—the pulverising of the flint is so rapid that a layer rarely lasts above three weeks, and the entire mass is then scraped off and used by builders instead of sand. The spicular flint particles are wafted about by the slightest wind, and enter all the houses, and are breathed by all passengers. The cost to the ratepayers must be very great, while no one object of a really scientific and healthy road is attained.” The dry days of March, when winds and dust predominate, are, as medical men are aware, attended by numerous affections of the mucous membranes of the throat and frequently of the eyes. Foul air leads to the disagreeable habit of expectoration.

Professor Fonnassagrives says:—“There can be no doubt of its tendency to produce those obstinate and now very prevalent disorders, ophthalmia, laryngitis, and granulous pharyngitis. I must add, the serious influence of dust upon the hair, which it hardens, and, so to say chokes, till it falls off by the repeated brushing which is necessary in order to clean the head.”

In addition to the marked evils noted as arising from the moveable matter on street surfaces—dung, dust, and abraded stones—there is great sanitary evil arising from the emanations of immoveable absorbed matter between the stones of the pavement, and excrementitious matter retained beneath them. Excrement-sodden soils are distinguished as seats of epidemic disease amongst populations. On the occasion of the visitation of the cholera epidemic in 1848, the General Board of Health gave particular directions to their Inspectors that the street surfaces in the seats of the epidemic visitations of ordinary fever should be carefully cleansed; but it was found extremely difficult to get at such excrementitious matter in some boulder-paved and cobble-paved districts. To accomplish the object the entire surface paving must be taken up, and there was neither time nor money to do this. In those cases where the matter could not be got at or removed, the board ordered that it should be covered three inches deep with good fresh earth mould. Where this was done there were frequent expressions of surprise from the people at the result—they felt themselves living in a new atmosphere, such as they had never experienced there before. As a sanitary rule, of which decisive illustrations

may be given, perfect impermeability of street covering is of primary importance, not only as a shield against subsoil-damp, but as against subsoil malarious emanations of every description.

Where there are various contributing causes of preventible disease and mortality acting upon such mixed masses of population as those of the metropolis, it is not at present possible to discriminate, with an approach to certainty, the separate results of each cause; but there is no doubt amongst sanitary authorities that the deaths due to the conditions in which the streets and the subsoils of the metropolis are at present kept are far more numerous, and give a larger proportion to the great mass of preventible sickness and mortality than has hitherto been taken into account. Such facts are brought forward as establishing the conclusion that the responsibility for the amendment and care of the cleansing of the public thoroughfares should be charged upon the newly appointed functionaries, the Medical Officers of Health.

The children's institutions adverted to, where the greatest sanitary improvements have been effected, were under the supervision of selected poor-law guardians, or persons of the class of vestrymen—persons of respectability, but not men of science, who did not appear to appreciate particularly the results of the sanitary science displayed before them, or to be likely to apply them in the other branches of local administration in which they might be engaged. The improvements were initiated by medical and other inspecting officers, of special science, and would in all probability fall through if their active supervision were withdrawn. It may be mentioned that the guardians were mostly opposed to the expense of paving the open yards or play grounds of the children's institutions, proposed on sanitary grounds,—but it has been found that smooth pavements have effected savings of shoe leather and its expense to the extent of one-half. There can be no doubt that the good cleansing, as well as the smooth paving of the footpaths, is to be regarded as productive of similar economy to the general population.

The coarseness and want of refinement in the common local administrations is displayed not alone by the filth of the streets under their charge, but by the disregard of the production of pain and other evils by the noise of traffic over different sorts of paving of the carriage-ways. The *Times* newspaper has recently aroused attention in London to the importance of noiseless street pavements. The following extract, from a work by Mons. Fonnassagrives, Professor of Hygiene at Montpellier, is deserving of attention as showing the position of the topic in the sanitary science of France:—

“I have characterised in the following terms the evil effects which the noise of large towns appear to me to exercise on the health:—Firstly, there is in populous towns a daily and nightly din, and there is scarcely any degree of silence even during two or three hours of the night. I cannot consider such a perpetual vibration of the nerves as harmless even for those who have been born and bred in the midst of the noise. It is certain that it is a very genuine cause of “*erethisme*,” and to it must be ascribed the prevalence of nervous temperaments and diseases in the large towns. A countryman transported suddenly from the calm of the streets of Vannes during the night to the uproar of the Parisian streets would very soon be able to appreciate the difference. There are, it is true, some exceptional natures which nothing can disturb, which pass unmoved through the roar of a crowded street; on which the creaking of carts and ceaseless rumble of carriages have no effect, and which can sleep anywhere and everywhere, in town or country, under good or bad circumstances. But, nevertheless, Paris, that producer of nerves, will very soon have transformed even these placid natures. And this is not without danger, especially to women. I have known a young girl, of seventeen years old, suddenly transported from the provinces to a noisy quarter of Paris, show the most alarming symptoms of nervous disorder, which did not subside until she returned to a quieter and less exciting atmosphere. At the periods of a woman's life when she is most subject to nervous maladies, this danger should be most

carefully guarded against. And what shall we say about the nerves of children and invalids? If the former are hard to rear in cities which create hysterics at eight years of age, some blame must certainly be laid on the air they breathe and the moral conditions in which they have been educated; but some part of the evil must be attributed to the influence exercised by noise on these little beings, in whose organisation the cerebral predominance is the most marked feature. As for invalids, quiet is of the first importance, and the noise in the streets is the cruellest stumbling-block in the way of recovery. The works of all authors are full of observations which testify to the pernicious influence of noise in cases of illness. The commentator of Boerhaave, Van Swieten, has cited a great number of facts to prove it. (*Aphorismes de Chirurgie*) A. Paré said on this subject:—“It is of importance that the patient should be kept in a quiet place, away from all noise if possible, far from clocks, muleteers' carts, &c.” But in a large town such quiet is a rare occurrence, and the noises which result from the life in a lodging-house only increase this of the streets.

“Besides the permanent noises of a town, there are accidental noises, such as discharges of artillery, which may produce the effects observed by A. Paré at the ‘Chateau de Hedin,’ where each discharge of cannon seemed to act like the blow of a stick on the head wounds of the patients, and frequently resulted in hæmorrhage, delirium, and even death.”

“As for the activity of the traffic, this is what produces the noise of towns (and the more when the ground is furrowed), by the wheels of heavy carts and omnibuses, of which the roll makes the nerves and the very window panes vibrate. The sedative qualities of the Venetian atmosphere is due to the absence of street noise. As for narrow streets, in addition to all other arguments I have brought up against them, I will add this one, that they are the cause of the re-echoing of sounds of which we have a good example when a train passes through a tunnel.”

Double-paned windows exclude much noise and save much warmth; but the annoyance caused by the vibration of the buildings continues where the roads are rough. Relief is provided for the wealthy by covering the roadways before their houses with straw, but the great majority of persons and the poor cannot afford the expense of such relief. It is estimated that in urban districts there are always about 10 per cent. of cases of “bed-lying” sickness amongst the population. In a mile of public thoroughfare there will be constantly between fifty and a hundred ailing persons whose sufferings will be specially aggravated by such conditions of noise and vibration as those described.

(To be continued.)

#### FARM HOUSES AND LABOURERS' COTTAGES IN IRELAND.

OUR worthy agricultural contemporary, the *Farmers' Gazette*, accompanied its last issue with two sheets of plans of farm-houses and labourers' cottages, erected on His Grace the Duke of Devonshire's property. Specifications and details of cost of construction are also given. The farm-houses, although an undoubted advance on those already existing, are not to our mind the kind we would generally recommend, and the labourers' cottages are less so. The cottages are certainly not ornamental, and their usefulness is only of that degree that they are a decided improvement over the mud cottages at present so plentifully scattered over the country, setting all laws of morality and cleanliness at defiance, or rendering such nigh impossible. The arrangement of these cottages is far from the best that could be devised, the accommodation being far too scanty, and the out-houses are in too close proximity to the walls of the cottages. The plan No. 1, recommended for general use, we would not like to see generally adopted. There is a kitchen of fair size, but there are only two bed-rooms, 9 ft. 9 in. by 7 ft. 1 in. The pig-sty is back up against the end wall of the kitchen, the pig-yard and manure-pit being the continuation in a lengthening line with the back wall of the cottage, the out-house for the coal or potatoes occupying the angle formed by the



remainder of the end wall of the kitchen and the three other appurtenances, its entrance ranging with the front wall of the cottage.

We do not detect on the plan a provision for a privy in connection with these cottages on plan or in specification. We suppose this requisite human accommodation is thought to be a luxury unfitted for the Irish agricultural labourer. We are told "the addition of a scullery, dairy, pantry, &c., to an agricultural labourer's cottage in Ireland is quite useless. It is necessary to study the habits of a people if you are to build dwellings for them. A roomy kitchen where all the family meals are eaten, and where the occupants of the house sit around the evening fire, a chimney that draws well, and a sufficient number of bed-rooms are *all* that is wanted in the house, and the contrast between such a habitation as this, and the mud hovel it sometimes replaces, is quite striking to satisfy even an enthusiast in philanthropy that a very great stride in improvement has been made."

We hope that the editor or conductor of our worthy contemporary does not endorse the whole of the above statement, and that when the *Farmers' Gazette* "Commissioner" does pay his promised visit to these un-model cottages, he will honestly point out their drawbacks.

We certainly would prefer the plan of cottage No. 2, the bed-rooms, back as well as front, being lighted, and the out-houses being intended to be built detached from the cottage. We are told:—"If the requirements of the labourer's family made additional sleeping-room desirable, the height of the front and back wall—viz., 9 ft., leaves enough of space for lofting over the bedroom, and a window can be put in the gable to light the loft, to which access can be had by a boarded step-ladder from one of the rooms below. If such extra accommodation is wanted in a house that has been built without a loft or gable window, it will be got more easily by half lofting the kitchen (over the entrance door, and parallel with the front of the house); no extra windows will be necessary, and one or two of the labourer's sons will find room for their beds there. Provision for joists may always be made by setting a single brick on edge dry in the walls at the proper distances, which can easily be removed if a half a loft is required." This is a free and easy portable system of building. The estimate for cottage No. 1 is £77 14s. 9d., and for cottage No. 2, £87 8s. 7d.

In the specifications or on the plans of the farmers' dwelling-houses, no more than on those of the labourers' cottages, is there any mention of water-closets. The w.c., we suppose, is an innovation despised by the tenant farmers in Ireland, and, so long as the manure-pit, pig-yard, pig-sty (lofted for fowl), &c., are backed up against the back wall of kitchen, and close against the back entrance porch, all the accommodation necessary is thought to be provided.

We would refer the author of these plans to the work elsewhere noticed in these pages, "English Country Houses," to what is said there about the requirements of country or labourers' cottages. This extract from the work alluded to will, perhaps, suffice for the present:—"Every cottage should have a small out-building for keeping fuel and workmen's tools, and a closet, which, instead of having a vault under in the usual way, may be fitted with a receptacle under the seat, into which each day some dry mould should be thrown, and the receptacle itself emptied on to the garden as often as needed. This is a simple method of carrying out the principle of earth closets now so much advocated."

We can neither commend the plans of the farm dwelling-houses or those of the cottages built on the estate of the Duke of Devonshire in this country as ones suitable for general adoption. They are faulty in design and arrangement, and in these sanitary times they are behind the requirements of civilised life, although in advance of the mud struc-

tures that still disgrace in so many districts the estates of our landed proprietary in Ireland.

#### SCIENCE AND ART MUSEUM FOR DUBLIN.

BEARING upon our remarks in last issue on "Art in Dublin," and the want of further facilities for Art-education by the establishment of museums and the promotion of technical instruction, in the House of Commons, Mr. A. M. Sullivan moved—"That in the opinion of this House science and art education in Ireland, especially as applied to manufactures and industry and the diffusion of technical instruction amongst the working classes, is in an unsatisfactory and defective condition, and that it is expedient and just, and would be in accordance with promises heretofore made by Ministers of the Crown, as well as with the frequently declared desires of the Irish people, that there should be established in Dublin, under management calculated to command the confidence of the classes intended to be benefited, a national institution of science and art, with a comprehensive museum analogous in purpose to, and in co-operative connection with, that of South Kensington." The hon. member said it would be unnecessary for him to dilate on the extreme importance of bringing technical education home to the masses of the people; and in fact, the subject of technical education was now very much where that of general education was a century ago. Some of them could remember the time when it was thought to be beyond the duty of the State to concern itself about the education of the people, and that the State should so concern itself was quite a modern idea. He could, himself, remember, that thirty years ago, when a boy, it seemed quite preposterous to expect the Government to do anything for the education of the people in art and science, beyond assisting in making a small grant very rarely, and to be locally applied for providing schools of design. Those schools of design however were the first evidence of a recognition on the part of the State of its duty to do something in the way of providing art education for the people. But it began its work at the wrong end. The schools were started on the principle that the main object of encouraging art was that they should be the means of producing a Maclise or a Gibson from the mass of the people, and it had only lately come to be recognised that the duty of the State lay in the direction of developing a knowledge of the principles of science and art in connection with their industrial applications. His motion accordingly did not concern itself with art and science and their higher branches, but only with art and science as applied to industry and manufactures. At present there were several institutions in Ireland which in some small part fulfilled the objects he was advocating, but which did not meet the requirements of the case. There was in the first place the Queen's Institute, a most excellent institution, which was managed wholly by women. Let them go throughout Ireland wherever design was necessary in manufacture, and they would find a hearty recognition of the efforts of the Queen's Institute which had done much to supply manufactures in Ireland with skilled artists.

Sir A. Guinness seconded the motion, which was supported by Sir Eardley Wilmot, Lord Eslington, and Mr. D. Davies.

The Chancellor of the Exchequer said the Irish members ought to be well satisfied with the reception given to the motion. The Government was prepared to deal with the question in a broad and liberal spirit, not as an Irish matter, but as one of a national character. His experience had convinced him more and more of the importance of the question as well as of the difficulties attending it. It was desirable to distinguish between the two distinct functions of South Kensington department as a national museum, and as a great school of art and science. It would be a great misfortune to break up the

Central School of Art and Science at South Kensington; but, regarding it at a museum, he believed that there was a great accumulation of art treasures from which some could be spared, not only for Ireland, but for other great centres of industry in Great Britain. It was desirable that South Kensington should make loans to these places. In Ireland there was an amount of genius for art which ought to be encouraged, and he was of opinion that the grant of money for this purpose might not only be increased but more judiciously administered. He would promise that during the recess the Government would attentively consider the subject in every disposition to meet the claims brought forward from Ireland and elsewhere.

Satisfaction having been expressed with the assurance given by the Government that the matter would be favourably considered, the motion was withdrawn.

We trust that as little delay as possible will take place in the providing of the modest facilities asked for on behalf of the working classes of this country.

#### THE BIRTH-PLACE OF O'CONNELL.

AN "Irishman," writing to a morning contemporary from "the birth-place of O'Connell, a roofless, ivied ruin, neglected and apparently forgotten by all," suggests that "there could be no more appropriate mode of celebrating the Centenary of O'Connell's birth than by rescuing the site of that event from hastening decay and eventual destruction, and preserving every relic of interest that is identified with the birth-place of O'Connell." We hope the Centenary Committee will not overlook the suggestion. They might deem it advisable to advertise for plans and estimates by resident architects for the "restoration" of the "Cottage by the Sea," where a great event took place in August, 1775!

#### CORK LUNATIC ASYLUM PLANS.

At the last meeting of the board of governors, the dispute in reference to the plans was resumed. We are glad to see such evidence of fair play as was given expression to in the disinterested remarks of Sir Denham Norreys, which we here subjoin, along with the correspondence read by Dr. Eames:—

My statement is that he was employed as architect for the completion of certain works—I will not say as the architect of the board, for he was not. I think that as he was not so appointed as architect, no board could, without notice to the rest of the governors, have dismissed Mr. Atkins—that was a proceeding *ultra vires*. Therefore I contend that the whole of these proceedings were not in accordance with the rules of the institution, and I contend that Mr. Atkins has done nothing whatever which deserves the treatment that he has received. All these alterations that have been so frequently spoken of were for the benefit of the board, done with the consent of the board, or the committee, or Dr. Eames, or Mr. Edwards. I think you have treated Mr. Atkins with great injustice. You have taken the business out of his hands on the most insufficient grounds. There happens to be a misconception between Dr. Eames and Mr. Atkins as to whether alterations were made with the consent of Dr. Eames. Where Mr. Atkins makes a positive assertion, and Dr. Eames makes another contrary statement, we may safely assume from their position that there has been a mistake, for I would not believe that either of them would intentionally state what is false. I therefore think that these proceedings have been rather hard, and it seems to me it would have been much better that you should have allowed the gentleman who designed these plans to superintend the carrying out of them. I think it would be much safer for the board and fairer towards Mr. Atkins to allow him to have the completion of the works.

SIR,—I am instructed by the house committee of the Cork District Lunatic Asylum to intimate to you, in reply to yours of the 14th inst., that however disposed they are to put an end to the discussions and correspondence concerning your claim, they cannot entertain your offer. I am to state

that the committee did not come to the resolve communicated to you without having first taken most competent and independent counsel, with persons wholly disconnected with the asylum, and regarding the investigation already had, and believing the decision arrived at was considerate and liberal, they do not now see why they should reconsider the matter. I am also directed to inform you that the committee altogether deny the assumed legality of your claim of 5 per cent., and that they cannot enter into the proposed discussion with you on the basis of the eight propositions put forward in your letter. I am at the same time directed to remind you of the facts that your own estimate of the proposed work was under £11,000, and they have tendered you a commission on £12,000.

JAMES ALEX. EAMES, M.D.,  
Res. Med. Supt.  
June 29th.

The reply to this letter—which was, however, directed to the general board—was as follows:—

MR LORDS AND GENTLEMEN,—The house committee having declined to accede to a proposal made by me with a view to an amicable arrangement being come to as regards the difference between the governors and myself, and as I am still anxious to bring the matter to a conclusion in a friendly spirit, I now beg to bring my proposal before the board itself. I have done a large number of works at the asylum, for all of which I have orders from the governors. My fees for these were withheld, solely on the grounds of my being employed on the proposed new works, and from a miscellaneous account alone £74 was deducted. The details of the other works, for which I have not been paid, are given in my letter to the committee. My proposition was to discuss the matter, provided the items alluded to were duly taken into consideration; or, should the governors prefer, I have no objection to leave the entire question to the decision of some architect of position in Dublin to be mutually agreed upon, as I am anxious that the part I have taken in the whole transaction should be thoroughly investigated. Up to the present my professional character has been assailed without proper investigation having taken place.

July 1st, 1875. WM. ATKINS.

The consideration of the foregoing letter was by resolution referred to the committee. Mr. Atkins, subsequent to the meeting and in reference to certain impressions prevailing as to his position and appointment as architect, has written the following letter:—

SIR,—In reference to the proceedings of the board of governors, as reported, it is necessary that I should correct an impression which seems to prevail with some of the members, namely, that I was only appointed to prepare the plans for the new buildings. I was engaged on these works as I have always been, to see them carried out to completion. That this was the intention of the governors appears from the proceedings of the board on the 4th of December last, when a resolution was passed associating the house committee with me, to decide any difference that might arise with the contractor during the progress of the works. Dr. Eames mentioned that he did not allude to the "professional" question in the matter; he should not forget that he stated that my letter of explanation, which included the professional question, "was all incorrect." In mentioning the "facts," he did not say that the alterations were proposed by him, and that I finished them on the original plans, after his interview with me, to save a board day. The committee say that they desired me not to alter the existing plans. I still affirm that I have not the slightest recollection of this. But supposing that they did so, they have also written to me to say that they gave no authority for making new drawings. What, then, was I to have ready for the board, if I were not to alter the existing drawings, or make new ones? The chairman mentioned that I did not reply to the *final* letter of the committee. This was an answer to one from me, in which I made a proposition for an amicable settlement of the matter, and I did not think that a reply was necessary.

July 5th, 1875. WM. ATKINS.

The duty of the board of governors appears to us to be very simple, if they are anxious to see justice done. The proposition of the architect, as made in his letter of the 1st of July, we consider a very fair one; and, as remarked by Sir Denham Norreys at the board meeting, there appears to be rather too much playing upon the word whether Mr.

Atkins was really architect of the asylum or of the works. It is quite clear that he was appointed and employed, and he is fairly entitled to the claim he has put forward, in his own interest and in that of the profession of which he is no unworthy member.

#### THE ROYAL HISTORICAL AND ARCHÆOLOGICAL ASSOCIATION OF IRELAND.

THE quarterly meeting was held on Wednesday, 7th inst.; the Rev. Charles A. Vignoles in the chair.

The following were elected as *Members*:—The Rev. R. S. Gregg, D.D., Bishop of Ossory, Ferns, and Leighlin; the Rev. Nicholas Murphy; S. H. Bibby, M.R.C.S.; Thomas Fosberry, C.E.; Mr. Fleming; as *Fellow*:—C. Palmer, Esq.

A number of books, presented to the library, were laid on the table.

#### HISTORICAL PORTRAITS.

The Rev. P. Moore brought under the notice of the association, engraved portraits of two men, neither of them Irishmen, but both connected with this country. First, there was General Vallancey, the archæologist, who, although many of his theories might be questionable, yet had done much good by arousing attention to Irish archæology after a period during which it had excited little interest. The other was connected with the county of Kilkenny, as being the portrait of the founder of the Wandersforde Family here—Sir Christopher, who had purchased Castlecomer and the surrounding district of Idough, and, although an English settler, had gained the good feeling of the old inhabitants, the O'Brennans, as was evidenced by their chieftain having protected his family in the troubles of 1641. This engraving, as was stated on the margin, was made in the year 1778, "from a portrait by Van Dyk in the dining-room at Houghton."

#### PRESENTATIONS TO THE MUSEUM.

Mr. R. Langrishe presented specimens of portions of deers' antlers, which had recently been found in great quantity about the base of an old tree, the evergreen oak, in the grounds of the Kilkenny Episcopal Palace. His suggestion was that a kind of manufactory connected with deers' horns must have been carried on in the locality anciently, as all the fragments found had been sawn or cut up in the same manner as the specimens before the meeting.

Mr. Graves remarked that about twenty years since, in the course of some explorations made in the cemetery at the Cathedral of St. Canice, great quantities of these sawn up fragments of deers' horns had been found in connexion with fragments of ancient flooring tiles, and clinkers composed of the materials intended for such tiles. It was evident that a manufactory of the encaustic tiles for flooring the cathedral had been carried on there; and he had brought the subject at the time under the notice of the society, with the suggestion that the hartshorn understood to have been used for imparting a glazing to the encaustic tiles, had been extracted from the remains of these old deers' antlers. The grounds attached to the adjoining episcopal residence were at that time part of the cathedral precinct—the road dividing the palace from the churchyard was of comparatively modern construction, so that they could not be surprised to find the evidence of the old encaustic tile manufactory extending from the present cemetery to the place in which stands the evergreen oak, which tree may be about 160 years old, but, of course, was merely put down as a seedling, without disturbing much the surrounding ground and its deposits.

Mr. John Willoughby presented a good specimen of the copper penny token struck by Edward Roth, merchant, of Kilkenny, in 1668.

Mr. Kyran Molloy, Clonmacnoise, sent for

presentation to the museum a copper farthing of Charles I., in excellent preservation, which had been recently turned up in digging a grave at the Seven Churches.

The chairman observed that Mr. Molloy was himself a most intelligent archæologist, and his voluntarily-rendered services as caretaker were invaluable. Without such a man on the spot to take care of the ruins and the monuments, it could not but be apprehended that serious injury to what was really a most important national monument, must be from time to time incurred.

Mr. Graves trusted that, before long, the Seven Churches of Clonmacnoise might be constituted legally a national monument, and placed under the charge of the Executive, although at present there was some difficulty in the way. In the meantime, as long as the ruins had the careful supervision of Mr. Kyran Molloy, they would be at least safe from injury.

Mr. W. F. Wakeman sent, on the part of R. W. Armstrong, Esq., Belleek, for deposit in the museum, the remarkable bronze dagger, with riveted bronze haft, which he had previously exhibited to the Association; as also another very interesting and almost unique antique, a Danish shield-brooch, which had been found near Enniskillen.

Mr. P. Watters presented a Greek antique—a terra-cotta "tear-bottle," which was stated to have been found at Athens.

#### ANCIENT FICTILE VESSELS.

Dr. Martin, Portlaw, presented a beautiful little baked clay urn, which had been found some time ago at Ring, near Dungarvan, county Waterford, and had been given to him for the purpose by the Rev. Mr. Mullins. The rev. gentleman having also, at the same time, promised to report to him any discovery of matters of antiquarian interest which might take place within his parish, had recently sent him word that another fictile vessel had been come upon in a field, under a large stone, and that it still remained *in situ*, awaiting his coming to see that it was properly raised. He (Dr. Martin) had been unable to go himself, but had sent Mr. Broderick, builder, a man of much intelligence, to act for him. Unfortunately, notwithstanding all Mr. Broderick's care and anxiety, they were unable to get out the large urn in a perfect state; it crumbled into fragments which he now laid before the meeting, and all his efforts failed to put those fragments together with cement, so as to form anything like a perfect object. It was, however, an interesting fact to put on record, that at the place where the latter urn had been found, there was evidence that a manufactory of this kind of fictile vessels had been carried on. They found the hearth, and materials, and fragments of the baked clay. He also presented the ashes which had been found within the urn.

#### OGHAM INSCRIPTIONS.

Dr. Martin said that a more important discovery had been recently made in the same neighbourhood. A stone bearing an Ogham inscription had turned up at a place called Kilbeg, in the parish of Kilbarry-Meaden. He now laid a drawing of the stone and scoring before the meeting, but had made arrangements to send the monument itself, which was not a very large stone, to be deposited in their museum.

#### IRISH WAR TRUMPETS.

Mr. Robert Day, jun., Cork, sent for exhibition three ancient Irish bronze war trumpets, one of which was found to be in two pieces, fitting together, and forming an instrument of great size; another had a ring at the end, as also a ring adjoining the orifice at the side—all of them having this orifice, for the mouth of the blower to be applied to, as they were not sounded from one end; and in this peculiarity resembled the war trumpets of the African tribes, one of which, composed of an elephant's tusk, and curiously ornamented, Mr. Day sent, from his own museum, to illustrate the ancient Irish bronze trumpets, which latter were the property of Captain

Chute, of Chute Hall, Tralee, who had lent them for the purpose of being exhibited at the association's meeting.

#### ANCIENT PROCESSIONAL CROSS.

Mr. G. J. Hewson, Hollywood, Adare, sent a paper on the magnificent processional cross—found near Ballylongford, Co. Kerry, and supposed to have originally belonged to the abbey of Lislaghtin, near that town—of which he had exhibited a very fine photograph at a previous meeting. It was accompanied by drawings and rubbings of the inscription, which he had deciphered as follows:—*"Cornelius filius Johannis O'Conchor sui nationis capitaneus et Juliana filia militis me fieri fecerint pro animabus Juliani et Correllii, M.D.L. XXIV."*

Amongst the other papers brought before the meeting, was one upon the ancient, but now all but obliterated Corporate Town and Parliamentary Borough of Bannow, County Wexford, by Mr. J. H. Kinahan, M.R.I.A.

Thanks having been voted to donors and exhibitors, the association adjourned till the first Wednesday in October.

#### CORRESPONDENCE.

##### THE SCAVENGING TAX, AND ITS APPROPRIATION.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Mr. John Byrne—whose speech in the Corporation, winding up with the childish suggestion that the citizens should be prosecuted for asking for clean streets, you quote in your last issue—states that the 2s. scavenging rate enables the Corporation to keep only 74 carts and horses. As I am not aware that the ratepayers have access to the accounts of our city expenditure, and the daily papers do not give them the attention and elucidation they require, I will feel much obliged if you will state in your journal: 1. What sum reached the hands of the Scavenging Committee in the past year?—2. What proportion of that sum was actually spent on scavenging?—3. What should be the average weekly hire of a horse, cart, and man?—4. How many sweepers should be attached to each cart, and the weekly wages of each?—5. How many horses, carts, and sweepers should the 2s. rate—calculating on these data—be capable of maintaining?—6. Can any opinion be formed as to the number of miles of streets to be cleaned—say once each week on an average—and what amount each cart, horse, and set of sweepers ought to be capable of doing in the week.

If this information could be obtained, the citizens will be enabled to judge for themselves what proportion of the scavenging tax is diverted to useless and illegal purposes—e.g., fee to counsel for advising Mr. Byrne as to the best method of muzzling grumbling ratepayers, and what modicum of truth there is in the statement that the available funds are insufficient to keep the city clean.

Yours, &c.,

A SCEPTICAL UNIT OF THE  
UNSCAVENGED MULTITUDE.

[Until the Government Auditor, in conjunction with the ratepayers, compel the Corporation to publish an honest balance-sheet half-yearly or yearly, from which "sundries," "incidental expenses," "petty cash," and all such "cooked" entries are eliminated, there will be no way open to the citizens for ever approximating to the cost of the services detailed in the queries of our correspondent. We could estimate what the work should cost, but what it actually does cost is quite another matter, which may, however, come to light shortly.—ED. I. B.]

##### CORPORATE ITEMS—MAIN DRAINAGE, ETC.

AFTER much "fuss," beating about the bush, and a show of standing upon a dignity long since forfeited, the Corporation resolved—*"That we hereby undertake to give such additional security as may be in our power to give, and we consent to such representation of her Majesty's Government upon the*

committee as has been given by any other corporation in the United Kingdom under similar conditions and circumstances."

The loan for the Main Drainage is not yet certain, as much has to be achieved before the money is visible, and the work cut down to proper dimensions in view of the exact financial and sanitary circumstances of the case.

The Baldoyle corporate property—one of the most wretchedly mismanaged properties in Ireland, has reached a crisis in its history. It was resolved by the Town Council—"That the land agent take the necessary steps to have the whole of the Baldoyle estate, including the town, sold in the Landed Estates Court, and the purchase money applied to the extinguishment of city debentures, and that a suitable memorial to the Lords of the Treasury be prepared, asking their permission to this arrangement."

Before the above scheme is carried into effect we will probably give our readers an insight into the history and management of the Baldoyle estate. During the last thirty years its condition was simply disgraceful.

#### THE AMERICAN SWINGING SIGNS.

SEVERAL traders have been summoned before the police magistrates, at the instance of the Corporation, for continuing to hang in front of their premises wire lettered signs of an ornamental character. The proceeding is taken under the 24 and 25 Vict., c. 26, s. 6, by which a penalty of not less than five pounds may be recovered for each offence. The hearing is fixed for to-morrow (Friday), at twelve noon.

#### SANITARY AND OTHER NOTES.

THE Corporation are moving on at the usual snail's pace in re the Main Drainage scheme. This and other cognate matters are alluded to elsewhere in our pages.

BLACKROCK.—At a meeting of the commissioners the secretary read a letter from the secretary to the Dublin, Wicklow, and Wexford Railway Company to the effect that the directors had instructed their engineer to carry out the works of extending the walls of the tunnel under the railway so as to enable the sewage of Elm Cliff to be carried into the sea; the work to be carried out at the expense of the commissioners. A letter was read on the same subject from Mr. Gray, C.E., advising the board to take immediate steps. Mr. Barnes, C.E., explained his own plan, and that of Mr. Gray, C.E. It was proposed that a committee should be appointed to consider the question. Mr. Leetch said he would not be a party to a hole-and-corner committee, such as had wasted £2,000 already! The consideration of the question was adjourned to a subsequent meeting.

KINGSTOWN.—At a meeting of the commissioners it appeared by the surveyor's report that 393,000 gallons of Vartrey water had been the daily supply to the township during the past month of June. A commissioner having called attention to the subject of the prevention of dairymen from adulterating in the township of Kingstown, a lengthened conversation ensued. Finally, it was resolved that steps should be taken towards having further prosecutions carried out. The sanitary officer reported that he had brought several cases before the police magistrates at Kingstown of the existence of nuisances prejudicial to the public health, and that orders for the abatement of the nuisances had been made in the majority of these cases.

BRAY.—At a meeting of the commissioners, a letter was read from the Dublin Corporation Waterworks Committee, stating, in reply to a communication from their board, that full and due pressure was given in the supply of Vartrey water to this township. It was resolved to place the entire correspondence in the hands of the solicitor to the board, to take all necessary steps in enforcing the water contract. The surveyor said that the waste of water in the township had become a crying evil. There was not enough pressure to raise water for watering the streets, and the consequences, through dust, were most injurious to Bray. He suggested that the water bailiff should be empowered to expend some money in pumping water from Bray

river to water the roads. The chairman said a special notice should be given in order to empower such an outlay. A copy of the Wicklow Railway Bill, with the amended clause relating to the level crossing at the Quinsborough-road, was received. An official letter was read requesting information as to the storing of explosive oils and materials in the township. The clerk said the subject did not apply to this place. The surveyor reported that a committee had inspected Bray railway bridge, with regard to certain filling-up works carried on there by the Wicklow Railway Company, by which the river's mouth was narrowed. The committee had conferred with the railway engineer, and as the filling-up in question would assist in the superstructure of a foot-bridge joining the two strands, its sanction was recommended.

ATHY.—At a meeting of the union sanitary authority, a letter was read from the Local Government Board, in which it is stated that Mr. Robinson, the inspector, found the workhouse in a healthy condition, but on visiting the infirmary, he found that since the date of his last visit a ward on the ground floor had been converted into a lying-in room, and he stated that in his opinion it is not suited for the purpose, being cold from the position of the doors, and having a brick floor; and he recommends that the room over this be fitted up as a lying-in room; and that a partition be put up in the position pointed out by him to the clerk and the master, so as to screen the occupants from persons passing up and down the staircase which opens into it. The cesspools connected with the privy and water-closets at the fever hospital, Mr. Robinson reports to be in a defective state, requiring attention. He suggests that a small cistern be provided over each water-closet, and kept supplied with water by means of a pump, and that the cesspools and sewers leading from them be at once put in order. The sanitary sub-officer of Athy having reported a nuisance to the sanitary officer—an ass occupying the same apartment as its owner,—the sanitary officer informed the board that he did not consider such a nuisance. Chairman—If an ass and its owner sleeping in the one small apartment is not a nuisance, it appears to me a very extraordinary thing. I consider such an opinion a barlesque on sanitary science!

CORK.—The following is a summary of the duties performed by the sanitary staff during a week, at a cost of £9 16s. 1½d., viz., washing lanes, £3 16s. 8d.; lime washing and disinfecting houses of sick poor, £2; lime washing lanes, £1 16s.; watching nuisances, £1 10s. 4d.; and straw supplied, 13s. 1½d.; 763 houses visited and yards examined (including five common lodging-houses); 63 persons noticed to cleanse their premises; 9 houses (containing 53 rooms) and three yards of sick poor lime-washed and disinfected; seven beds destroyed and new straw supplied; 14 lanes lime-washed; 48 lanes lime-washed, viz., 2 six times, 3 three times, 6 twice, and 37 once; also several channels; 6 persons summoned, two for keeping gut establishments, so as to be a nuisance—ordered to discontinue within seven days, with 15s. costs; three for depositing nuisance on the streets, fined 2s. 6d. and costs each, and one common lodging-house keeper for violation of the "bye-laws," fined 2s. 6d. and costs. The above is very cheap work, if it has been well done. We are almost afraid to say what other sanitary staffs nearer home would charge for the same work, although we are of opinion that the cost of refreshments would be the heaviest item, whether it was entered under the head of "sundries" or "petty expenses."

NAAS.—Respecting the sanitary condition of this town, the *Leinster Express* says:—"The odour which prevails in some parts of the streets is second only to that of the Liffey near the Four Courts; and, what is still more dangerous, the purity of the water supply of the town is endangered by the percolation of sewage matter through the earth. The abatement of the nuisance is rendered peculiarly difficult by the situation of Naas. One portion of the town is built on a hill, and the consequence is no water is at hand for flushing the sewers. Reservoirs supplied by means of a hydraulic ram have been suggested, but there would seem to be some difficulty in obtaining the full necessary for working the ram, except by purchasing either from the Canal Company, or the proprietors of mills in the neighbourhood the right to divert water for the purpose. Another difficulty arises as regards the discharge of the sewage. It is illegal to discharge it, as at present, into water-courses; and indeed it is not improbable the sanitary authority would soon have received an unpleasant reminder of this fact, if it had not taken the subject into consideration of its own accord. Two courses now remain open to the board: it can either deodorise and filter the sewage, and discharge it into the canal, or it can use it for irrigation."



**DRUMCONDA SEWERAGE.**—A number of ratepayers of the Drumcondra district attended the meeting of the North Dublin Board of Guardians to urge on the Sanitary Board the necessity of improving the sewerage of the district. Cases of typhoid fever have occurred in the neighbourhood. Of late years the district has suffered not a little for the want of a proper system of sewerage. The River Tolka, that runs through the neighbourhood, has also been subject to increased pollution. An application is intended to be made to the Board of Works for a loan of £1,500 for the purpose of carrying out the works, according to plans by Mr. Boyle, C.E. We are rejoiced to hear of any progress in a sanitary direction. The northern suburbs of the city have for years been sadly neglected. In prospect of building operations in and about Drumcondra, we heartily approve of the object sought to be obtained by the influential deputation who so clearly laid the case before the Board of Guardians.

#### DUBLIN SANITARY ASSOCIATION.

At a late meeting of the Executive Committee, it was announced that an application had been at the Corporation Depot, Marrowbone-lane, for a cab to convey a patient to the Meath Hospital, but no cab being there, the Cork-street Hospital cab was lent for the purpose. On inquiry being made at Bass-place, it was ascertained that there was no cab kept there. Two members of the committee were then requested to visit the locality, and it was discovered that the horse was kept at Bass-place, but that the cab formerly kept at Marrowbone-lane had been removed to M'Guinness'-place, off Brunswick-street, although ample accommodation for it could be had at Bass-place. The yard at M'Guinness'-place was next visited, and in a shed in this yard, which belongs to a member of the Public Health Committee, the cab was found. The cab is unfit for its purpose. The attention of the committee was also called to a statement in the morning papers, to the effect that the cab kept at the North Dublin Union is not available to the general public for the removal of patients to hospital. Having heard the foregoing statement, it was unanimously resolved—"That the Public Health Committee of the Corporation be requested to kindly furnish, at their earliest convenience, the following information for the Executive Committee of the Dublin Sanitary Association:—(1.) How many conveyances are at present available to the general public for the removal of patients to hospital in Dublin? (2.) Where such conveyances are now situated? (3.) How they are to be most readily obtained? (4.) What information on these points is in the hands of the public at the present time?"

The answer to the above queries will probably be "marked read," or a reference to the Sub-Committee of the Supplemental Committee of the "Half House."

#### HOME AND FOREIGN NOTES.

**NEW LIFE OF SWIFT.**—Mr. John Forster is, we understand, engaged on a Life of Swift, and a new edition of his works.—*Academy*.

**DOOR-SPRINGS.**—To traders and others replacing the old form of door-springs for swinging doors, for an improved kind possessing many advantages and adjustable to any tension, easier fixed, and less liable to derangement, we would refer them to the announcements that appear in our advertisement columns.

The Registrar-General's returns for the past week show that the deaths in the Dublin district represent an annual mortality of 18 in every 1,000 of the population. There is no epidemic visitation. In Belfast and Londonderry there have been eight deaths from scarlet fever. In the Sligo district a person aged 106 years has paid the last debt of nature.

**A NEW SPORTING PAPER.**—Under the title of *The Turf Telegraph and Dramatic Gazette* appears a new weekly claimant for the favour and support of those amongst the "public" who are disposed to sport upon "the Turf," and also to encourage "the Drama." There is ample field for such a journal at the present time; and, if conducted with skill and energy, its proprietors will meet with encouragement.

**THE WESTMINSTER AQUARIUM.**—The buildings for the new aquarium at Westminster are rapidly progressing. The dimensions of the aquarium will be about 600 feet long by 240 in depth at the widest part. The building will be two stories in height, and will contain in the basement a central tank of salt and fresh water, holding 600,000 gallons; this will be kept in constant motion, and made to pass continually through a series of smaller tanks, by the action of a steam engine destined to work both day and night.

**"FATHER PROUT."**—Father Prout's unpublished writings are being collected, and will shortly be published under the title of "The Final Reliques of Father Prout." It appears that the family of the late Rev. Mr. Mahoney possess several MSS., which will form the chief item in the forthcoming volume. One of the pieces that will be published is a humorous tale, somewhat after the style of those Father Prout contributed to the magazines. It was left partly finished at the author's death.—*Athenaeum*.

**WHAMMOND'S ILLUSTRATED GUIDE.**—A copy of the tenth annual issue of this useful compilation is to hand. Whilst we candidly acknowledge that there is a vast improvement in the matter and get-up of the present issue of the "Guide," we observe that there are still some few parts which stand in need of emendation, and which we trust the author will look to. The book, however, can be read with interest and pleasure, not only by the visitor to our city and beautiful suburbs, but also by the "Citizen of the World." It is well turned out by the Dublin Steam Printing Company. The volume would be much improved if supplied with an index.

**OLIVER GOLDSMITH.**—Professor Ingram, of Trinity College, in a letter to the *Times*, directs public attention to a case of distress that has strong claims upon the sympathy of Irishmen. He says:—"There is at present resident in Dublin a great-niece of the poet Goldsmith, a very aged woman (she is now 85 years old), suffering from ill-health and extreme poverty, her whole maintenance being a weekly allowance of 4s. from a charitable fund. I need hardly say that this sum is wholly inadequate to procure for her lodging, food, fuel, clothing, and such medicine and attendance as her helpless state renders indispensable. The object of the present statement is to obtain a fund sufficient to afford her during her remaining term of life a reasonable weekly allowance, and to provide some very necessary articles for her personal use. I am authorised to mention that donations on her behalf will be received and acknowledged by Mrs. Lloyd, Provost's House, Trinity College, Dublin, or by the Very Rev. the Dean of the Chapel Royal, Dublin Castle.

**NEW PATENT BITUMINOUS TUBING.**—Since our last issue a number of gentlemen interested in engineering and sanitary appliances assembled at Sir John Rogerson's-quay to witness experiments with a new bituminous tube, patented by Mr. John Fottrell. A tube, 15 inches in diameter and 2 inches in thickness, was first tested by hydraulic pressure, and when the index registered 100lb. to the square inch the joinings gave way, but the pipe did not show any flaw. A similar test was applied to another tube 9 inches in diameter and 1½ inches in thickness, and when the same pressure had been reached it remained intact. It is stated that the pipes can be used in many instances for purposes for which metal vessels and tubing would be unsuitable, and can be supplied at about one-sixth the cost. Should this be so, the patent will prove of great importance, in view of the steadily increasing price of metal. The results of the experiments were considered satisfactory, although on a former occasion the pressure reached the enormous height of 140 lbs. to the square inch without any apparent effect on the tubes.

**"IF THERE'S PEACE TO BE FOUND IN THE WORLD!"**—Dr. John M. Fox, the Medical Officer of Health for Keswick, has forwarded us (*Sanitary Record*) a glowing description of the Arcadian beauties of that neighbourhood. "A district in which Nature has been most lavish in the display of her charms, where few people die, where crimes and offences are of such rare occurrence that magistrates have very little to do, and where everybody seems to pay his way regularly—such a district seems to fulfil the conditions of a happy land. Such a place we possess in Cumberland. At Keswick, where nature has concentrated within a small compass an accumulation of beauties of scenery that may challenge rivalry, the rate of mortality is the smallest in the kingdom, and nobody seems to die except from old age or the trials of early childhood; the magistrates have only been called upon to investigate about three offences in nine weeks; the county court is held there only once in two months, and the cases are disposed of in a quarter of an hour." Here surely is a new Vale of Avoca which

will gladden the heart of the moralist, the sanitarian, and even that of the Local Government Board. We are rejoiced to make known to our readers the existence of this Happy Valley, where, "if there's peace to be found in the world, the heart that is humble may hope for it here."

**MISSING PUBLIC RECORDS.**—A daily contemporary, in commenting on the case of Wilson v. Arundel in the Vice-Chancellor's Court, makes some remarks which have a bearing upon our notice in this issue under the head of "Public Records in Ireland," which was, however, written before the proceedings of the trial came under our eyes. It is difficult to say whether more "records" belonging to Ireland have been lost than stolen. "During the above trial," says our contemporary, "a circumstance transpired which exhibits in a strong light the carelessness with which the ecclesiastical documents have been kept in Ireland. In September, 1872, Mr. James Ganly, of Upper Erne-street, purchased, in Mr. Bennett's salerooms, at an auction of lost or forfeited property, a box sent in by the Great Southern and Western Railway Company. This box on being opened was found to contain the records of the diocese of Ferns for several centuries. The records consist of registries of births, deaths, and marriages, clerical inductions, wills, assignments, &c. No one can tell how long they have remained in the lumber stores of the Great Southern and Western Railway Company. They now remain in possession of Mr. Ganly. Shortly after the passing of the Irish Church Act, a peremptory order was addressed in the name of the Lord Lieutenant to every bishop, registrar, and clerical person in Ireland, to transmit all records connected with his diocese, registry, or parish, to the keeping of the Irish Church Commissioners or the Record Office, Dublin. The records of the diocese of Ferns appear to have been sent up separately from those of the diocese of Ossory, and had escaped notice when those of the diocese of Ossory, with which Ferns was ecclesiastically united, reached the proper hands. We will only add that the records of the diocese of Kildare prior to 1800 have long since disappeared. Perhaps, like the priceless MSS. of the Escorial, they have been used up in the manufacture of cases for sky rockets."

#### TO CORRESPONDENTS.

**ART STUDENT.**—There are some good manuals on "Mathematical Instruments." One of the best we know, for clearness of description, is that by William Ford Stanley, F.S.A.—a practical instrument maker, to boot, who knows really what he describes. The "Treatise" can be had of the author, at 6 Great Turnstile, Holborn, London; or through Simpkin, Marshall, and Co., the publishers.

**VALER (Mark-lane).**—Only on the terms stated, and for a continuance.

**W. (Chelsea, London).**—With or without "blocks."

**ORMOND.**—If sent in time, it would have been made use of. We fear it will be too late for next issue.

**SANTAS.**—Notice in present issue. The subject will not be lost sight of.

**ASPHALT.**—Particulars were forwarded to your City office, E.C., and not to private address.

**VERITAS (Dublin).**—Packet left for you at our printing office. Thanks.

**INQUIRER.**—We have not seen "Health in the House." It is, we believe, published by Messrs. Longmans and Co.

**VERAX.**—We do not think he is at liberty to practise privately as a C.E. We shall write you on the matter soon, when we ascertain upon what terms he was appointed to the public office he at present holds.

**W. S.**—We invariably reject the class of advertisement you offer. We trust that, as in the case of "Betting" advertisements, the law will also take cognisance of those newspapers which defile their columns with obscene announcements.

Received—R. W. S.—H. C.—T. and Co.—R. H. A.—An Architect's Assistant.—An Artisan of the Old School.—Clerk of Works.—H. B., &c.

Some London correspondence reached us too late to receive proper acknowledgment. Cases absolutely requiring a reply immediately will be attended to by letter.

#### NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

Correspondents should send their names and addresses, not necessarily for publication.

Post Office Orders and Cheques should be made payable to Mr. PETER ROE, 42, Mabbott-street, Dublin.

#### RATES OF SUBSCRIPTION TO IRISH BUILDER.

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**BROOKS, THOMAS & Co.,**

**SACKVILLE-PLACE,  
DUBLIN.**

**MESSRS. EARLEY AND POWELLS** beg to announce that Messrs. John Hardman and Co., of No. 1, Upper Camden-street, have resigned the business of Artists, Sculptors, Church Painters, and Metal Workers, in their favour.

Earley and Powells have added to the above mentioned business the Painting and Staining of Windows for ecclesiastical and domestic buildings, under the management of Mr. Henry Powell, who conducted the Stained Glass Department of J. H. and Co., Birmingham for many years.

Mr. Thomas Earley is the only Church Decorator living who was taught his profession by the late A. Welby Pugin.

E. and P. being thoroughly practical men in each Department, are enabled to supply real artistic work at a moderate cost. They, therefore, respectfully solicit the patronage of the Clergy and Gentry of Ireland.

**CAMDEN-STREET WORKS, DUBLIN.**

**IRISH VAL DE TRAVERS PAVING  
COMPANY (LIMITED).**

This Company can now undertake the laying of Pathways, Brewery Floors, Granaries, Platforms, Stables, Garden Walks, with their natural rock Asphalt. Water cannot percolate this pavement; being guaranteed to last for years, it is the cheapest pavement in existence.

Application to the Offices of the Company, 39 DAME-STREET, DUBLIN.

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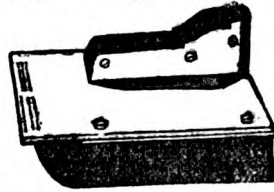
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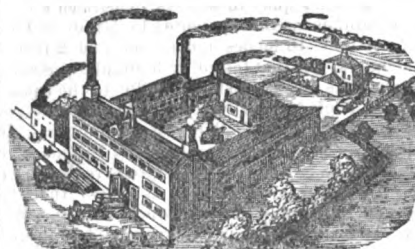
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# The Irish Builder.

VOL. XVII.—No. 375.

## Agricultural Dwellings in Ireland.

OME commendable attempts have been made in this country within the last few years to provide decent and healthy dwellings for the labouring population, but the majority of these efforts have fallen far short of the needs of the time. There are some of our landed proprietary, and their agents particularly, who think that all that is required for the wants of the agricultural labourer is a cottage with one kitchen, which is to answer for a daily living and sitting room, and two bed-rooms at most. In some cases the agents and advisers of our landlords vote for a piggery, coal-house, and manure yard, the fowl-house being combined in one or other of these out-houses. The pig—i.e., the “filthy brute,” as some call him, although he helps to pay the rent—is thought worthy of an improved housing by our improving landlords and agents; but the human creature, created in the image of his Maker, is thought below any decent provision, and, unlike the pigs in these times, he is allowed to live amidst, if not to wallow in, his own filth. Our language is neither too strong nor too rough for the ears of those who are more concerned for the care of their beasts than the welfare of their workmen.

In our last issue we commented on the shortcomings of certain plans for labourers' cottages in the south of Ireland, and in doing so we were actuated by no bias or prejudice, our object being to lead to the building of a better class of dwellings. Our remarks would seem to have hurt the feelings of “improvers” we were not thinking of, whereas our observations were intended to be generally applied. Is it not a fact that the mud hovels that disgrace the estates of our landed proprietary are unfitted for the housing of cattle, not to speak of them as the dwellings of men? Kitchens, with clay-made floors, with large ruts and holes here and there, often full of the slops of the house; and sleeping-rooms common to the parents and to the children of both sexes—some infants, while the elder are marriageable. How can self-respect, morality, or health be possible? Even with two sleeping-rooms—one devoted entirely to the children of both sexes—decency is impossible.

In doing away with the mud cabin or clay-built cottage, and substituting a brick one, an advance is made, so far as material is concerned; but if the same arrangement of plan is perpetrated, there is but little good achieved. In providing the labourer with a brick or concrete cottage, we have need to provide him—according to the number of his family—with a good kitchen, and two or more sleeping rooms, and in addition to this the necessary out-houses for the pigs, fowl, fuel, tools (one or more may be combined), and in no instance should there be an absence of a closet or privy. Is it decent, is it moral, is it bearable, or rather is it not shameful that landlords or their agents should render it

necessary for a whole colony of people, children included, to resort to the fields and ditches and the brick walls of their houses for places of accommodation? We speak in plain language, and there is no use in longer veiling practices and malpractices that should be exposed. If good cottages, with proper sanitary requisites, are not provided for our agricultural population, as well as our artisan town population, no direct social improvement is possible. It is, or ought to, be the interest of landed proprietors to provide suitable dwellings for their tenants and work-people, and facilities exist at present for doing this under the Lands Improvement Act; but the character of most of the dwellings erected by landlords who availed themselves of the borrowing powers under this Act, is not above reproach.

It is not because the agricultural labourer is the lowest member of the social strata that he is to be housed worse than the pig or ass. His want of education—in Ireland at least—keeps him almost in general ignorance of everything save his toil. There is no better mode of elevating a man's thoughts, even though he may lack elementary education, than giving him a decent home with healthy surroundings. It is the duty of clergymen of all creeds to preach sanitary improvement to the humble members of their flocks, and to inculcate the laws of health as well as the laws of God during their visits to their parishioners.

Cleanliness is said to be next to godliness, but a number of our landed proprietary and their agents render it impossible for their tenants to be clean, or to rear up their children with clear ideas of self-respect. The husbands, from the cheerless and foul condition of their dwellings, are driven to the public or ale-house; and the poor ill-fed, ill-clothed wives, between the work of the house and the care of the children (who are in rags like themselves), have no bright prospect before them. Were it not for the pure air of the country, the death-rate among the labouring population would be double what it is. Their dwellings are little better than pest houses, or living graves, and outside and inside, in the immediate proximity of their cottages, they are continually breathing the effluvia of animal and human filth. The dung-pit is often a few feet from the door, and its drainage may often be found making its way in over or under the threshold. The slops and refuse of the house, along with its own inherent heat, keeps this manure in a steaming state, and often there is an absence of any kind of house drainage, even in the new brick cottages which are called “improved dwellings.” In sober earnestness, we ask our landed proprietary and their agents how would they like to live in houses that had no drainage, or that were unprovided with water closets? In general, cottages should be built within a short or easy distance of good roads. The site should be dry, and when the sub-soil is clay the ground should be thoroughly drained. There should be a plentiful supply of pure water, and that from the roof should be utilised by being conveyed to underground tanks.

For the accommodation of man and wife there should be a living-room, at least 12 ft. square, and 8 or 9 ft. high, a scullery not less than 10 ft. by 8 ft., a pantry 4 ft. by 3 ft. with an external window. The spaces under the stairs (when the cottages are two-storey ones) should be appropriated, if pos-

sible, for stores. There should be three bedrooms, one containing 900 cubic ft., a second, 700, and a third about the same size. This is what is recommended in a work lately noticed, and by an architect of large experience. No bed-room should be less than 8 ft. high. The windows should be of good size, made to open, and not like the majority of Irish cabin windows, hermetically sealed. Cupboards or closets next the fire-places should be placed in the recesses next the fire-places in the living and bed-rooms. The living-room should have a range containing an oven and boiler, and a furnace pan or copper should be provided in the scullery. An oven for bread baking can be constructed in the out-house where there are a number of cottages together. Two of the bed-rooms should have fire-places. For ventilation, perforated zinc ventilators can be inserted over the doors and in the ceilings of the cottage bed-rooms. The floor of the living-room should be boarded, but those of the scullery, pantry, porch, out-buildings, can be paved with brick, stone, or tile, on a bed of concrete. And last, though not least, a sink should be provided in each scullery, with waste-pipe leading to a trap outside, or to a bucket or other convenience under the sink.

A well-arranged ground plan is a matter of primary importance in the planning of country cottages. Mr. Wilkinson says on this subject, that a good plan provides a lobby without the entrance door, upon which opens the living-room door, and sometimes the pantry door, and in it is placed the staircase (when the cottage is two storeys) giving access to a small landing above, from which all bed-rooms can be separately reached; the scullery is approached through the living-room, and has a door to the back yard.

Of course there can be a modification of this plan, and good cottages can be built of one storey, but the out-houses ought to be detached—those connected with animals and their refuse.

We will be told that the cottages or dwellings we have above described are only fitted for parks and town-houses, but unfitted for out-of-the-way country districts. Health, mortality, comfort, and decency is never out of the way, but should be for ever present in the cottages of the agricultural population, and until our landed proprietary provide some near approach to the class of dwellings we have described, they will not discharge their duties as landlords and christians, with justice, and as responsible guardians of the interests of their tenants, and the social welfare of the agricultural population.

## PUBLIC RECORDS IN IRELAND.

(Continued from page 188.)

MANY of the “Fiants” of Henry VIII. are so suggestive that we are almost tempted to dilate at length upon them. Lapse of time has so altered the names of some of the places mentioned and the localities themselves, as to render them scarcely recognisable. The lands mentioned still exist, but old villages and landmarks have disappeared, and it needs the skill and research of a painstaking and erudite antiquary to supply fitting illustrations. A running commentary here and there, or a word or two of explanation is all that we can afford.

1589-40.—Grant to Walter Esmonde, conventual person of the late Monastery of



B.V.M., by Dublin [St. Mary's Abbey] of a pension of 40s., issuing out of Drysshoke, in the parish of St. Glanokes, by Dublin. [Drissich, now Drishogue, a townland on the west side of Drumcondra-road. See new edition of Archdall's "Monasticon Hibernicum," now publishing.]

1539-40.—Grant to Thady M'Gillernowe, prior, and to other conventual persons of the late Abbey of Granarde, of the following pensions:—The prior, 4 marks; Thomas O'Farrall, 13s. 4d.; Eugene M'Gyllanaewe, 18s. 4d.; Moyras O'Hyrraghti, 13s. 4d.; Fergall Crossan, 18s. 4d.; Conacius Gillanawe, 18s. 4d., issuing out of the rectory of Strade Innybreceay [now Street, in the counties Westmeath and Longford.]

1539-40.—Grant to Milo, Bishop of Ossory, late commendatory of the Saint Columba, of Enestioke, county Kilkenny, of a pension of £20, issuing out of the manor of Enestioke. [There is frequent mention of this place in the "Fiants," both in relation to the rectory and priory.]

1540.—Lease to Thomas Alen, Dublin, gentleman, of the site of the Monastery of the Order of Preachers, by the Mote of Nase [Naas], with its appurtenances, county Kildare. To hold for 21 years, at a rent of £69s.

Same year.—Lease to Thomas Alen, of Dublin, gentleman, of the site of St. John the Baptist, of the Naas lands in Naas, Herberteston, Johnston, Walterston, and Whitechurch, county Kildare, and Tresteldermot, county Carlow. To hold for 21 years, at a rent of £35 18s. 2d. [These Alens, or Allens, seemed to have fared very well, and to have got possession of a large amount of confiscated property in the time of Henry VIII., and subsequently.]

1540.—Lease to Martin Pellis, of Athie [Athy], gentleman, of the manors of Athie and Woodstoke, possessions of Gerald, Earl of Kildare, attainted. To hold for 21 years, at a rent of £10 10s. 8d. [The Geraldines appear to have been always getting into trouble, and siding with the rebellious "Irishy;" and though originally Norman or Anglo-Norman, becoming "more Irish (to use a well-worn phrase) than the Irish themselves."]

Here is another.—Lease to Martin Pellis, of Athy, gentleman, of the site of the Priory of Friars Preachers, Athy, with a mill near Tulmacarre, and other appurtenances, county Kildare. To hold for 21 years, at a rent of 40s. [This was dog cheap. Pallas, if not Pellis, is a name still favourably known in Ireland, but more belonging to the south than east.]

1540.—Lease to David Floyd, soldier, of the site of the Priory of Preachers, or Black Friars, Trym, with appurtenances in Trim, Toullegarde, and—To hold for 21 years, at a rent of 40s.

Among the "Fiants" of this year and subsequent years there are many which must be interesting to Kilkenny folk, in the matter of grants, leases, &c., in relation to monastic property in that county. Kilkenny felt the rod, and suffered severely for possessing so much ecclesiastical worth and resisting so long against its spoliation.

1540.—Charter for the Abbey of B.V.M. of Wothonia, diocese of Emly [county Limerick], of the Cistercian Order, with the assent of James Earl of Ormond and Ossory, its founder and patron, transferring it to a secular provost (prepositura), John Ryane, late abbot, to be provost.

Here are other agreeable grants to members of the Allen family:—

1540.—Grant to John Alen, Master of the Rolls, and Thomas Alen, gent., of the offices of constable of the Castle of Maynoth, seneschal of the court and surveyor of the manor of Maynoth and Maynothesley, and keeper of the park of Maynoth, to hold to them and the longest liver, with a fee of £10 sterling, and all other rights.

Here is a pardon to a batch of "wild Irish plunderers" for being sorry for disturbing the peace of the "Defender of the Faith." Query: how long, we wonder, did these roving rapparees or rebels keep faith with the deputy of Bluff Harry.

1540-1.—Pardon to William Furlonge of Greseton, County Wexford, horseman, Philip, Nicholas, and John, his sons; Moyas Furlonge, of Davestown, same county, horseman; Thomas Furlonge, of Balganriaghe, same county, horseman; Thomas, Henry, John, and James Furlonge, of the same county, footmen, sons of Patrick Furlonge. Fine, £5 10s. [The Furlongs were a little regiment in themselves, and appear to have been divided into cavalry and infantry. The Pale must have suffered from their raids, and their pardon was easier granted than the obtaining of their bodies, dead or alive.]

Here comes another pardon worthy of particular note.

1541.—Pardon to Edmond Assheholde or Asbolde, of Maynothe, yeoman, servant of Lord Leonard Gray, late Deputy, for having raised Kedogh Omore [O'More] of Stradballi in Lex, gent.; Schan M'Coyn, of Kylclene, horseman; Neyll O'Yallorde, of Disert, horseman, and other Irish, to make war upon Peter Butler, Earl of Ormond and Ossory; Alexander Fitz Tyrrelagh, of the Great Grange, and other English, and for all other offences.

1541.—Lease to David Shegan, of Cork, merchant, of the site of the Monastery of Friars Minor by Cork, with a fishery, a weir, and land in Cork, and land in Tempelmymrath. To hold for 21 years, at a rent of £4 2s. 4d. sterling.

1541.—Lease to Robert Casey, of Dublin, gent., of the site of the priory of Augustinians by Dublin, with appurtenances in Dublin and Tybberboyne. To hold for 21 years, at a rent of £6 0s. 9d.

Same year. Lease to Robert Hande, of Dublin, gent., of the site of the Monastery of Franciscans by Dublin, with appurtenances in St. Francis Street and Clandolcan.

[The last two "Fiants" respecting the Augustinian priory in Thomas-street, and the Franciscan in Francis-street, are suggestive of much historical details, which, however, we have no time to enter upon. A new Augustinian Church, our readers are aware, is now in course of completion in Thomas-street, near to the site of the ancient priory, and another church stands near to the site of the old monastery in Francis-street, but the chapel of the Franciscan Order in Dublin, for many years, is that known as Adam and Eve's Chapel.]

1541.—Grant to Nicholas Stanyhurst, of the office of clerk of the Parliament. To hold during pleasure, with a fee of £10 during the continuance of the Parliament.

[The name of Nicholas Stanyhurst occurs several times in these "Fiants" as clerk of the Parliament, clerk of hanaper; and in the Auditor-General's book there is an entry of a grant to Nicholas Stanyhurst of the site of

the Monastery of Carmelites or White Friars of Dublin, with appurtenances, to hold for ever by the service of the twentieth part of a knight's fee, and a rent of 2s. 6d. Nicholas Stanyhurst is not to be confounded with Richard Stanyhurst, the Roman Catholic divine, poet, and dramatist, and the author of that rare historical tract, entitled "Descriptio Hiberniæ," spoken commendably of by Bishop Nicholson, but denounced in strong language by the Roman Catholic historian, Keating. Richard Stanyhurst's work on Ireland was translated into English, and published in the second volume of Hollingshed's Chronicles, London, 1586. Henry VIII. died in 1547, so his "Fiants," properly speaking, ceased with him, though the results intended followed. Nicholas Stanyhurst belonged to the reign of Henry VIII., but Richard was the son of James Stanyhurst who filled the office of recorder as well as speaker to the Irish House of Commons, and the said Richard was born in the year 1547—the year in which Henry VIII. died.]

1541.—Pardon to Thady Raynolde, *alias* M'Raynylde, chaplain, for surrendering his bulls of appointment to the bishopric of Kildare.

The same year—Grant of English liberty to Sawe Ny Doyn, of Bodnamisston, Co. Meath, widow, and her issue. Fine, 13s. 4d. [What did the widow do, we wonder! Like Cornelia of old, or the mother of the Gracchi, did she rear up her sons to be kernes, gallow-glasses, and "captains of their nation," and had she at last to succumb to the lords of the English Pale?]

These "Fiants" are full of pardons for transgressors or reputed transgressors, and here follows a number of pardons for a batch of "yellow bellies," i.e., Wexford men.

1541.—Pardon to Gerald Hey, of the Co. Wexford, horseman (especially for the death of Phillip Chever, kerne), James Ketin [Keating], especially for the deaths of Thady O'Doole, Edmund Hey, John Hey, Patrick Hey, horsemen, Mathew Hey, husbandman, Walter Ketin, clerk, Thomas Siggins and Robert Stafford, horsemen, all of the Co. Wexford. Fine, £8.

1541.—Grant to John Rawson, knight, of the dignity of Viscount of Clontarf. To hold for life. Also an annuity of £10 sterling issuing out of the manors of Tassagard and Rathowith, and of 500 marks sterling out of Droogs, by Kylmainhan, and other possessions of the hospital of St. John of Jerusalem in Ireland.

[The above is an interesting entry, as it relates to the possession of the historical castle and lands of Clontarf, and in relation to the hospital of St. John of Jerusalem, the site of the present Royal Hospital at Kilmahnam.]

1541.—Order of the Lord Deputy and Council at the petition of the Earl of Ormond, that in consideration of its situation among the Irish, the Abbey of Tome, in Ormonde, be not dissolved. Donald O'Meare, the custos, and his brethren, to adopt a secular habit.

Same year.—Mandate for the investiture and consecration of Richard Ferrall, late Abbot of Granarde, as Bishop of Ardagh. By virtue of King's letter at Greenwich.

The following shows the early possessions acquired by the Barnewell family in the county Dublin:—Lease to Patrick Barnewell, of Feldeston, gent., of lands of Luske, Swerdes, Cromlyn, and Dologht [Saint

Doulough's], county Dublin; Loghshallayne, Grenoke, and Dardieston, county Meath, and in Drogheda; rectories of Gracedieu, Port-rane, Lambaye, Wespelaston, Balmador, Newcastle, M'Gyngane, and Tobbyr, county Dublin, possessor of the late priory of Gracedieu. To hold for 21 years, at a rent of £40.

Here is an interesting "Fiant"—Lease to John Alen, Chancellor, Gerald Aylmer, Knight, Chief Justice, and others, of the site of the Monastery of Friars Preachers, beside Dublin, messuages in St. Mighan's Parish [St. Michan's, Church-street], St. Patrick-street and Newe-street, and a moiety of Helen Hores Meade, *alias* Gybbetes Meade, county Dublin. To hold for 21 years, at a rent of £6.

Here is an entry about the Cathedral of St. Canice, Kilkenny, illustrated in our last issue:—1541—Union of the vicarage of B.V.M. of Gawran to the prebend of Tyscoffyn in the Cathedral of St. Canice, Kilkenny, during the life of Thomas Cref, the prebendary—Thomas Cref to find a fit priest to hold service in the church of Gawran.

1541.—Safe conduct of 40 days for John Nane and his company. Egyptians driven from Scotland by stress of weather. In the same year we have another "Fiant" to the following effect:—Order of the Lord Chancellor and Council (on reference from Lord Deputy, upon a petition to Parliament by Powyll Fayoff, of Lytle Egypt, his captain and company of Egyptians, sojourning in Dublin) discharging the said Powyll from an indictment in the King's Bench, alleging that he had stolen newe color sarsnet, black damaske, at Swerdes [Swords], the goods of Richard Russel, of Drogheda, merchant.

If these so-called Egyptians were in reality a tribe of Gypsies, we don't wonder that silk, satin, damasks, frieze, and other staple products of Dublin and Swords disappeared on the advent of the Gypsies to our shores, through stress of weather or otherwise. A long argument could be hinged to this item about these reputed Gypsies. It has been asserted, we believe often, that no tribe of Gypsies ever voluntarily came to Ireland, although they are an institution in England for centuries, and at the present hour tribes of them may be seen encamped in or near to the Royal Forests, and other wooded districts in England. But even in England the Gypsy tribes are dying out fastly. Fortune-telling is at a discount, and pilfering is dangerous, so the Gypsy element is becoming gradually absorbed in the working masses. Gypsies through England may be found in the character of hawkers and drivers of caravans hung around with all kinds of domestic wares, mats, brushes, carpets, children's and invalids' chairs, buckets, baskets, &c. The outside of the caravan or wagon is their shop, the inside their travelling dwelling, in which they live, cook, and sleep. Sanitary reform calls for the abolition of at least some of the inseparable characteristics of this mode of roving life, as well as that sort of life which exists in our canal boats.

We have not yet exhausted our extracts from the "Fiants" of Henry VIII., and in another notice we may present some more interesting extracts which, like what we have already classed here and there, are deeply suggestive and full of historical interest.

**KILLOWEN CHURCH.**—The ceremony of consecrating this church, after enlargement and renovation, took place on the 27th ult., and was performed by the Bishop of Derry.

#### UNSEAWORTHY SHIPS.

THE efforts of Mr. Plimsoll, on behalf of our seamen, deserve to be supported and sustained by the Press in general, and the public at large. Volumes might be written on the malpractices of unprincipled shipowners who have systematically insured rotten vessels and sent them to sea for the avowed purpose of having them lost with all hands, and pocketing the blood money made at the cost of the lives of the crew. Until Mr. Plimsoll took up the case of our seamen, every other week there were disastrous wrecks, and numerous cases of summoning in the Police Courts of London by the agents and owners to punish sailors for breaking their contracts. Many of the poor fellows deserted the vessels, because they knew or heard from others the vessels they signed articles for were unseaworthy, and they would run the risk of losing their lives if they went to sea in them. The magistrates, too, often listened to only one side of the case, and punished justifiable desertion with imprisonment, making criminals of men who were naturally endeavouring to save their own lives.

Board of Trade inquiries are frequent now, but still there are many vessels in different parts of the three kingdoms that sail in an unseaworthy condition. The recent case at Waterford has, we fear, its counterpart in many parts; and too much vigilance cannot be used to detect these unprincipled owners, who are driving a trade at the sacrifice of thousands of lives yearly, and of adding greatly to the number of widows and orphans who are paupered and thrown upon the rates by the nefarious transactions of these cold-blooded speculators.

The *Shipping Gazette* contains the following report of the remarks made by Lord Gifford in giving his decision recently in the Court of Session at Edinburgh, in the case of the alleged unseaworthiness of the "Bard of Avon." This report, which was copied into the *Times*, may be thus summarised:—

"After referring to the circumstances of the case, his lordship said it was much to be regretted that the wholesome and salutary rule of law relating to the survey of vessels had not very often been carried into effect in the case of unseaworthy ships which were lost. The unfortunate and melancholy result was that many ships were annually sent to sea totally unfit to cope with its most ordinary dangers, and not only large amounts of property were yearly lost, but large numbers of lives were sacrificed by the culpable and wrongful conduct of the owners in sending to sea unseaworthy ships. The real risk was run by the uninsured seamen, including the officers, who were too often pressed by necessity to accept employment in vessels in which the owners had no interest further than that the assurance should be paid if the vessel was lost. It was lamentable, and even frightful, how many ships were lost at sea long after they should have been broken up; but they were far better paid for as lost ships than by being broken up as old material. The present case must be judged of on its own merits, but it was not unfair to feel, and it was not unfair to say, that the evidence as to unseaworthiness must be very carefully scrutinised and examined, knowing, as they did, the strong temptations which existed through the system of insurance to relax diligence and watchfulness as to the state of a ship sent to sea, it being now in many points of view almost matter of indifference whether a ship was lost or not. His lordship then entered into the history of the vessel as brought out by evidence, and said that it was eminently unsatisfactory. The ship was built in the year 1839, so that when she was abandoned in February, 1873, she was 34 years old. Her original classes had long since run out, and she lay useless in the Clyde till 1870, when she was sold by the Clyde Trustees to pay her dock dues. She was bought for £780, being about £1 per ton according to her tonnage; whereas a new vessel would cost £20 or £30 a ton, and an old vessel even £12 a ton. She must have been very bad when she realised so little. The defenders say they spent £800 in repairs; but, even admitting that, the price was still not more than £2 per ton—a miserably small price for a ship. Then, it spoke volumes that, with a ship costing little more than £1,500, the defenders proposed to earn by the freight of half a voyage a sum very nearly equal to the whole cost of the vessel. In fact, the whole circumstances pointed in one direction—namely, that this old and worn-out vessel was not fit for the

known dangers of the voyage which she undertook, and to which, without loss of life, she was obliged to succumb. The owners, in his opinion, had not complied with the terms of the contract, and they were answerable for the consequences."

#### SEWERS AND SCIENCE.

IN a discussion which arose a few weeks since on the necessity of constructing a sewer in the town of Athy, Dr. O'Neill (in response to a request from the board of guardians for an expression of his opinion) "said there was no doubt a craze existed in the present day on sanitary science. A number of people had endeavoured to disseminate the most absurd theories, their object being to impress the world with the belief that they were profoundly learned in this science. Sewers were undoubtedly a sanitary necessity where they were intended to carry off leakages or percolations from water-closets. And when such sewers were brought under houses they should be made with cement. Some of the worst cases of blood-poisoning that ever came under his notice were caused by the exhalations of sewers up through floors. But he did not believe cesspools from cowhouses or stables to be half as dangerous as is sometimes endeavoured to be made out. As is well known, ammonia is the principal exhalation from such, which is of so extremely volatile a nature that it is rapidly absorbed in the atmosphere."

#### DISPOSAL OF SEWAGE AT RATHDOWN WORKHOUSE.

THE important subject of the means of disposing of the workhouse sewage—whether by utilisation, or by conveying it in pipes to the sea at Ballybrack—came up for discussion on Wednesday. Captain Robinson pointed out that under the new act the board of guardians, as a sewerage authority, were competent to form a sewer to the sea, as proposed, which plan he deemed the most satisfactory. Mr. Crosthwaite spoke in favour of the sea plan. Mr. Burke said Mr. Andrews, their engineer, had suggested that the proposed drain might be combined with one for Ballybrack, which must ultimately be formed, and thus save expense. Mr. Breslin thought an Act of Parliament should of necessity be obtained to take in Loughlinstown common, and erect tanks for deodorisation and utilisation. He believed the land-owners along the shore would take action against the sea plan. Mr. Crowe was in favour of the deodorisation plan. Several guardians recommended a combination of the proposed plans. Captain Robinson explained the law bearing on the case, and recommended the board to obtain an engineer's report as to the feasibility of conveying the overflow of water right into the sea, and not into the estuary of the Ballybrack river as proposed. Lord Monck supported Captain Robinson's recommendation. He thought the guardians had no right to injure other people by conveying the drainage water into an estuary. He agreed in the suggestion to confer with the Ballybrack Commissioners, in order to provide a large drain pipe for all the district. Mr. Pim was in favour of constructing an ample drain for the combined district, which could be thoroughly flushed into the sea at Ballybrack strand. He thought that scientific sewerage works were generally useless, through want of care. Lord Monck, in conclusion, advised the board not to shirk the duty cast upon them by the Legislature of preserving the public health, and not to allow a mere question of cost to prevent this being done effectually. Captain Robinson stated, in reply to a question, that should a combined sewer be carried out from Ballybrack and the workhouse, the guardians should apportion the cost on the township mentioned and on the union at large. A resolution was passed, calling on Mr. Andrews, C.E., to make a general report for the board as to the size and the expense of constructing a sewer from the workhouse to the sea.

### THE NEW AND OLD "PADDY'S MARKET," GLASGOW.

THERE are few who know aught of Glasgow but have heard of the old clothes stalls of Glasgow, off the Saltmarket, known as "Paddy's Market," where the cast-off clothes of denizens of nearly every part of the globe might be seen and purchased. A court suit or a mourning suit, a frock coat, swallow-tail, Kersey, Mackintosh, Irish frieze, a knee-breeches, moleskin, barragon, or corduroy, a silk, satin, white, red, yellow, blue, and green waistcoat, with every other variety of wear and tear in the clothes line. What Mary's-lane and Plunket-street were once to Dublin, "Paddy's Market," in Bridgegate, of Glasgow, and Cowgate, in Edinburgh, is to Scotland. The spirit of improvement has, however, overtaken the precincts of the Saltmarket and the Bridgegate, and Paddy's Market is "restored," or rather re-built. Some weeks ago a new erection has supplanted the temporary structure that had stood for some years at the entrance of Glasgow Green. It is built in the form of the letter L, one wing of which is 78 ft. long by 70 ft. wide, and the other 172 ft. in length by 63 ft. odd in width, with frontages to Greendyke and Lanark-streets. The frontage in the first-named street is plain Italian style, with rusticated basement, and windows with ornamental framework. The interior walls are finished with white enamelled brick, the inside being divided into stalls to suit the requirements of the numerous tenants. The stalls on the ground floor number 195 for retail, and 86 for wholesale trade. Galleries run round the building, crossed at stated distances by bridges, and these will accommodate 172 stalls. Three large arched entrances lead from Greendyke-street, while stairs right and left, 9 ft. wide, give access to the galleries. A small glass office is fitted up for the lessee, Mr. Campbell, in the centre of the entrance lobby, from which point the whole lobby is overlooked by the custodian. The Lanark-street frontage is of brick, with window dressings of ornamental white brick. The whole flooring is laid with Val de Travers asphalt. A lavatory and other requisite conveniences are provided, with a view to the business being carried on with comfort and cleanliness—matters that were greatly overlooked in the original "Paddy's Market." The cost of the entire building is between £16,000 and £17,000. The lessee is bound to pay an annual rental of £2,000, so the burden of the cost will not fall upon the ratepayers.

The scenes that might be observed in the old market would beggar description, and could not be adequately represented in print. We witnessed these sights more than once during a residence in Glasgow some years ago. In a work on Glasgow, Ancient and Modern, published in 1872, compiled from a number of authorities, and based upon the old work of John McUre, edited by J. F. Gordon, D.D., an amusing account is given of the characteristics of the Bridgegate and the precincts of the Old Clothes Market. The editor says:—"One of the staples of the Bridgegate is now the old clothes trade. In Scanlon's-close, on the south side of the street, and nearly opposite to King-street, was held the wholesale Old Clothes Market for the supply of 'hand-me-downs' to all Ireland—often at the cost of the West-Enders. The trade is not only a home but an export one, for vast quantities are periodically sent to Ireland, and it may be almost said that for every crate of cabbage, or hamper of poultry or eggs from the sister isle we send in return a bale of fine old 'hand-me-downs,' consisting of coats, trousers, boots, shoes, hats, caps, shirts, shifts, cloaks, greatcoats, gowns, petticoats, &c., of every size and in every shade of condition, and these, after a slight renovation, re-appear on the persons of the Milesians at chapel, fair, or market. [Aye, and on the backs of the Caledonians and Scotians too.] In fact, on looking on the

handsome uniform of the Glasgow Yeomanry the other day we could not help reflecting that part of it, when too shabby for the original wearer, is inevitably destined to deck Pat's outer man, and enable him to make a show at Donnybrook or Ballinasloe. [The historian was unaware that Donnybrook Fair had ceased to exist for sixteen years previous to his writing.] No one can tell how many sloe-eyed Judys and Biddys may have their tender hearts rent by the fascination of the cast-off Glasgow Yeoman's jacket, with its red facings."

This is not bad, though rather dry banter on the part of the Rev. Mr. Gordon, who is known to be as fond of a "wet," whether it be of Scotch "toddy" or Irish poteen, as any Highlander or Lowlander from the Candle-riggs to Cromarty.

Mr. Gordon continues—"It will hardly be believed that sometimes £1,000 a week change hands in the old clothes trade. [It is stated now that the annual turn over in the market amounts to something like £70,000.] But we are assured of this on authority which we deem highly trustworthy. There are positively capitalists in the trade, to whom the minor fry who collect the 'tog-gery' in all parts of the city during the day, repair in the evening and dispose of their armful of old coats, gowns and breeches. These collectors consist of the honest trader, who gives crockery or cash in exchange for your 'cast-offs,' as well as the 'Artful Dodger,' who removes a silk handkerchief from your pocket without your leave. Unpretending and humble though the old clothes shops or booths may appear, the rents in proportion are as high as in Buchanan-street, and yet we hear much less from this quarter of the dreadful public burdens to which both proprietor and tenant are subjected, especially of the poor-rate. Property in the Bridgegate has, however, been gradually decreasing in value for the last 15 years."

The Union Railway has nearly entirely altered the appearance of the Saltmarket and the Bridgegate since 1869, and the Improvement Commissioners have been following quickly after. The locality is very unlike what it looked ten years ago or less.

The historian of modern Edinburgh might give a similar picture of old St. Mary's-wynd, in Edinburgh, and portions of the Cowgate. One of the great Irish representatives of the clothes trade, in the Edinburgh Cowgate, died a few years ago, after amassing a respectable fortune. He was known to Irish visitor and Scotch resident, and to his resident countrymen at large, in Edinburgh and Leith, as "Barney Barker," which was his real name. Barney's shop in the Cowgate was not inaptly termed the "Irish House of Parliament," for, when looked into of a night, Barney was to be seen in high converse, with the newspaper in his hand, expounding the complex subjects of Irish nationality and Scotch Catholicity to a number of his admiring countrymen. Barney died a good Christian, and left some hundreds of pounds, we believe, for putting up a peal of bells in St. Patrick's Church in the Cowgate, and for other charitable purposes. For aught we may know to the contrary, Barney's business is still carried on by his widow or other members of his respectable family. It is now some years since we peeped into a meeting of the "Irish Parliament" in Barney Barker's shop in the Cowgate.

Having said so much by way of reminiscence, we will merely observe now that the old clothes trade of Edinburgh, Glasgow, Dublin, and London, as carried on formerly (and, we fear, still) was the means of spreading a large amount of infection. The clothes were collected from every source—sick-room, cellar, and hospital. The suit of the fever patient that died suddenly, or of some malignant form of typhus or other disease, often passed into the pawn-shop or clothes market without the least disinfection or washing, and thus disease was communicated. It is absolutely necessary that some system of surveillance and inspection should be

organised now for the protection of all classes of people—the poor particularly—against the danger of infection through the medium of our public clothes markets in different parts of the three kingdoms.

### SANITARY ENGINEERING.

A REPORT has been drawn up by Mr. John H. Brett, County Surveyor, in reply to queries submitted to him in respect to the proposed sewerage of Naas. The queries comprised—"What is the best system of sewers to adopt in the town of Naas?" "Where would be the best point of outfall?" "In what manner can the water be raised to flush the sewers?" "How the sewage is to be disposed of?" and "The probable cost?"

The report was submitted at a meeting of the committee of the Naas Board of Guardians, at which a number of the Town Commissioners attended on invitation. Without subscribing to all Mr. Brett's suggestions and calculations, we consider the report a good one in many particulars, as it contains a digest of practical information on sewerage matters that ought to be more generally known, and is suitable for application in different districts according to local circumstances.

We give the first portion of Mr. Brett's report. When we publish the remainder we may probably offer a few observations thereon. Recently we gave a series of articles extending over a year, embracing almost every phase of the sanitary question, and the disposal of the sewage of towns. We advocated irrigation as one of the best methods of disposal where suitable conditions existed. We have not walked over the ground at Naas, nor are we as yet sufficiently acquainted with the town to say what system of sewerage would answer best. Mr. Brett ought to know:—

#### WHAT IS THE BEST SYSTEM TO ADOPT?

It is evident that whatever system may be adopted, a full development of its usefulness cannot be attained without unsettling many arrangements which the people of Naas are accustomed to, and which they may believe—though erroneously—to be valuable and harmless conveniences. At present a majority of tenements in the town are unprovided with appliances such as privies, dustpits, drains, water supply, &c., necessary to subserve or complete any system of sewerage. And, moreover, the dust heaps or manure heaps which, under existing circumstances, are necessary evils, produce some little profit to their owners. The disturbance, expense, and trouble of making new arrangements would probably be severely felt by the poorer inhabitants and house-owners.

A consideration of these circumstances introduces the debatable question: whether public sewers ought to be at the rear or in front of houses? The expediency of placing public sewers everywhere at the rear is open to doubt, inasmuch as the town is so irregularly built that difficulties and expense of formidable proportions would be met with inevitably. It is not possible to lay out lines of back sewers without meddling with houses, walls, and other private property in a very arbitrary and injurious manner. But still the probable advantages of back sewers are very great, considering how much might be saved to the owners of house property in having the means of draining their premises most conveniently placed, and in being relieved from the necessity of constructing branch sewers under the houses.

However, after careful consideration, I am of opinion that it is not expedient to attempt building back sewers universally, but only where no serious obstacles exist. And I believe that the least disturbance of existing interests, consistent with the attainment of sufficiently beneficial results, would be found in running the public sewers through the streets, but with branches to the back-yards, wherever there are favourable openings, such as archways or passages in common.

According to modern ideas sewers are considered to be imperfect if they are not self-cleansing or so planned that sewage can pass through them with sufficient velocity to counteract any tendency to the formation of deposits. This counteraction should be continuous rather than intermittent, and to ensure it there must be a sufficient continuous admixture of water with the sewage. Flushing sewers by means of occasional gushes of water,



though a very necessary and useful expedient in cases where the full power of self-cleansing does not exist, cannot be depended on as a complete substitute for that power. It may be remarked that an occasional flushing, however useful, if applied to the existing sewers of Naas, would not be a thorough remedy for their defects. In consequence of their peculiar construction and arrangement they would still continue to leak, and solid deposits would still form and remain in certain places, undisturbed by the heaviest flushing.

However defective the existing sewers may be as carriers of sewage, they are certainly useful for taking off surface-water and subsoil drainage, and it becomes a question of importance whether in the event of new sewers being provided for carrying off sewage, the old ones ought to be retained for surface and subsoil drainage. I am disposed to recommend the double system if it can be carried out—which is doubtful—without introducing elements of extreme complexity into the general design. In any case it would be advisable to discharge surface and subsoil drainage at the main outlet for sewage.

With regard to the mode of constructing sewers, pipes are to be preferred, not only on the score of economy, but also on account of greater efficiency and greater security against leakage. It would be advisable to adopt the plan of laying out sewers in regular straight lines, with man-holes at bends and intersections, and with lamp-holes at changes of gradient. The use of lamp-holes is, that when a lamp is let down into one of them, and viewed from the nearest man-hole, the condition of the intervening length of sewer can be seen. Man-holes, besides serving the purpose of such inspections, provide means whereby any casual obstruction in the sewer can be got at and removed.

Without proper ventilation the benefits of a system of sewerage otherwise well designed and constructed, would be neutralised, and it is thought that the injurious results of non-ventilation would be greater in towns sewered on the small-pipe system than in those where sewers of larger size are used. Many contrivances have been invented for producing combined ventilation of sewers and deodorization of sewage gases, but none of them are thoroughly satisfactory. It is found, however, that the plan of allowing sewage gases to escape freely through numerous openings, if they are sufficiently removed from houses, works pretty well. An eminent authority, Mr. Baldwin Latham, C.E., observes that "Sewer gas escaping into the streets, and combining with large quantities of atmospheric air, is less injurious than when allowed to escape into the more limited atmosphere of our houses. All the organic poisons can be diluted to such a degree as completely to palliate their destructive effects, but still they may retain all their poisonous properties when again concentrated. Pure atmospheric air has the power of oxidizing or destroying organic compounds, but when sewer air enters the generality of houses, especially at night, when the house is closed, and the whole atmosphere has been robbed of its vital properties, the gas carrying the elements of decomposition or the germs of disease becomes a deadly poison;" and Mr. Latham observes further that "the mere evidence of smell or its absence is no indication or otherwise of danger. Smelling gases may be harmless, while those matters which are most pernicious are usually devoid of odour." And he says that "the great safeguard against the evil effect of sewer gas is dilution. Only allow the gas to combine with sufficient pure air and it is harmless, even if conveying the germs of disease."

Sewers are found to act like chimneys in causing an up-draught of gases from lower to higher levels. This peculiarity may perhaps be considered advantageous rather than otherwise at Naas, inasmuch as the summits of the hills on which the town is built afford favourable positions for allowing the gases to escape.

In my opinion it will be advisable to provide for thorough ventilation by means of free openings placed in any favourable positions in the streets, and I think contrivances for combined ventilation and deodorization must be sparingly used, if at all.

A proper construction of sewers which are to take drainage from yards and houses into the public sewers is essentially necessary, and must be insisted on as of the utmost importance. It would never do to allow the owners of houses to construct sewers at random, or without regard for securing uniformity and efficiency of action throughout the whole system of sewerage. If the main sewers be constructed of pipes, the house or yard drains connected with them should be of pipes also. Water to carry off sewage, sufficient ventilation, and security against leakage of gas or sewage are essen-

tial to the proper working and uses of house drains. Without obtaining these conditions universally the general results must become unsatisfactory. The non-existence of appliances for utilising sewers creates a serious difficulty, for even if drains be made from the back yards, and though some benefit ensue from taking off surface water, slops, leakage of manure heaps, &c., yet grievous evils would still remain unremedied. The ground would still be encumbered with filth which could not reach the sewers.

#### WHERE WOULD BE THE OUTFALL?

The selection of a site for the main outfall, and the alignment or general plan of sewerage must remain unsettled in some degree, until various surveys and trial sections are made, those at present available being wholly insufficient. I am of opinion, however that a plan can be arranged so as to allow all the drainage to be discharged at a single outlet; and I believe a favourable site can be found on the low ground between the branch canal to Corbally and the Knocks. Other sites can be suggested, but none more convenient in a general way. If this site be adopted I would propose three main lines of sewers leading to it, and off these various branch lines to reach every tenement in the town.

The first main line would commence at a hollow on Sallins-road, near Dr. Falkner's house, would cross the field between Sallins-road and the canal, pass under the canal, and so on to the outfall. Branches would extend along Sallins-road, lower part of Main-street, Dublin-road, Friary-road, St. John's-lane, and part of Corban's-lane.

The second main line would commence in Main-street, opposite Basin-lane, would pass through part of Basin-lane, then skirt the canal for some distance, and after passing under it would join the first main line. There would be branches in Back-lane, Main-street, Fair-hill, Loughwee, and part of Corban's-lane.

The third main line would commence, if desired, at the workhouse, and from thence would pass through fields and across the Ballymore and Kilcullen roads, to a point on Rathasker-road, thence on to New-row, part of Basin-lane, and after skirting the canal would pass under it at the point where the gaol sewer ends, from thence on to a junction with the first and second main lines. This line would require to be laid at a considerable depth under surface in crossing the Kilcullen-road. There would be branches in New-row and Kilcullen-road. One of the branches in New-row would be extended to the military barracks.

The risk of flooding, to which the lower part of the town is subject, may be reduced, or perhaps entirely prevented, by lowering the head race and wheel of the mill near Oldtown demesne.

#### IN WHAT MANNER CAN WATER BE RAISED TO FLUSH THE SEWERS?

I believe the Grand Canal Company has a right to the water of nearly all the streams in the neighbourhood of Naas as feeders to the canal, and, besides, there are other interests militating against any interference with those streams. It is true that in the high country south of Naas there are several favourable sites for storage reservoirs, from which a supply of water by gravitation and at high pressure might be obtained, and also supplies to the owners of vested interests more valuable, because more regular than they possess at present. But I fear the expense of obtaining water for the town in that manner would be too great.

I would suggest as probably less expensive to deal with the Canal Company for a supply from Corbally branch, of which the water must have exceptional purity. The company may be able to supply not only sufficient water, but also water power enough to raise a supply to the highest levels of the town.

I am of opinion that the water supply ought not to be limited to the quantity requisite for occasionally flushing the public sewers. Nearly the same expenditure would be required in laying pipes for a small supply as for a large one, and the only material saving would be in water rent. Besides, I consider that if the house drains cannot be flushed either continuously or intermittently, the proposed new sewerage would be altogether useless in a sanitary point of view. A supply of anything like 100,000 gallons of water per diem would be ample for all the requirements of the town, in addition to the quantity that may be obtained from existing pumps.

(To be continued.)

Bannow Church, diocese of Ferns, has been reopened after enlargement and remodelling. The new works comprise chancel and transept, open timbered roof, stained glass windows, &c. The whole expense has been borne by Captain Boyle, D.L., of Bannow House, Wexford.

#### VERY WIDE TENDERING.

OUR contemporary the *Builder* publishes a list of tenders (23) sent in for works at Hampstead Asylum. The highest was for £1,060, and the lowest for £399 1—the latter was accepted. In another instance the highest tender was for £200 7s., the lowest £64 3s. 10d.!! The second lowest on the list (£78) was accepted. "In both these cases we may fairly ask at which end of the lists is the swindler?"

#### "THE LITERATURE OF GOTHIC ARCHITECTURE IN IRELAND."

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In your notice of Mr. Smiddy's work (p. 172 of *IRISH BUILDER* for July 1st, 1875), you say:—"The simile of the reed shaken by the wind in its application to our Round Towers possesses no force. Where lies the comparison between a waving weed and the solid, unwavering, and resisting pillar tower?" &c.

Although I agree with you in your argument, I will give Mr. Smiddy an analogy to quote in his favour, although it will not help his *Christian* theory much. I refer to "A Journey through the Caucasus and the Interior of Persia," by Mr. Mounsey, in which he gives the following account which may suggest the above comparison. Can any of your Irish architects give an explanation of the phenomenon hereafter described?

"The wonders of the world are now innumerable; but in the days of our childhood, books told us there were only seven, and that next to the Colossus of Rhodes, the shaking minarets of Ispahan were the most marvellous of them. Mindful of this, we rode out one morning after breakfast, through four miles of ruins, to see them, and I confess that my expectations were so woefully disappointed when I first came in sight of them, that I felt inclined to turn tail and ride home again.

"Instead of graceful airy forms of bright coloured tiles and gilding, I saw two constructions exactly like the brick chimneys of an English foundry, rising some 20 or 30 ft. above the roof of a decayed and desecrated mosque. Their custodian, however, prevailed on us to dismount, and feel, if we could not see, the effect of these world-wide marvels.

"Narrow stairs, just capable of admitting one man, lead to their summits, which are surrounded by low parapets; he mounted one and I the other, and as soon as we were aloft, he signalled 'attention' to me, and commenced swaying his body slowly backwards and forwards. The minarets at once followed his motions, and began to bend and sway like pliant willow-wands; in a few moments their oscillation became so great, and we got so far out of the perpendicular, that I quite repented of my first disappointing impression, and was glad to descend again to *terra firma*. One can imagine a single tower so constructed that a man at its top can make it oscillate; it is more difficult to discover how he can make a second tower, 12 or 14 yards distant, participate in that oscillation. Therein lies the marvel. Its explanation might perhaps be found in a minute examination of the mosque roof which forms the base of the minarets; but we had no time for this, as our departure was fixed for the next day."

Mr. Mounsey says that these minarets resemble the brick chimneys of an English foundry, but he does not say of what material they are built.

Can you or any of your correspondents inform me where these minarets are described more accurately? It appears to me that they must be timber constructions, covered with *chunam* cement; anyhow Mr. Smiddy can find in them examples of towers which can be shaken by the wind.—Yours faithfully,

S. P. OLIVER,

Capt., Royal Artillery.

8 Clarinda Park, West, Kingstown.

July 18, 1875.

\* "Sanitary Engineering," pp. 201, 235. London: E. and F. N. Spon, 1873.

## PUBLIC WORKS IN IRELAND.\*

(Continued from page 189.)

THE works executed in connection with inland navigation and harbours were of the usual description—the repair of locks, embankments, lock-keepers' houses, towing-paths, and the freeing of the water-courses of the weeds which seem to be a constant trouble through their rapid and luxuriant growth. The works of this class performed on the Ulster Canal, as reported by Mr. Robert Adams, C.E., show that the work of maintenance has been well attended to.

Mr. Edward H. Alcock, the Harbour Master at Dunmore, has always, in his annual report, something to tell us on the very useful subject of our fisheries. His report of the last season is not a bright one. He says the past season has been one of the worst ever remembered. The deep-sea fish has not been plentiful, as heretofore. The primary cause of the comparative failure is attributed to the long and heavy breaks in the weather confining the trawlers for weeks together to the harbour. The herring and pilchard are reported to have almost completely deserted the shores during the past autumn, and consequently the fishermen have had to contend with really bad times. The salmon season was below the average in Waterford Harbour during the early part of the season, but it gradually improved towards its close, and there was an abundant take of "peal." Mr. Henry D. Burney, the Harbour Master at Howth, has little to report, save the number and cargo of vessels and fishing boats which frequented the harbour during the year, which were as follows:—Cargo vessels, 277—tons, 21,485; fishing boats, 600—tons, 10,800. Ever since Howth was superseded by Kingstown as a mail packet station, Howth seems to have grown worse and worse each year. The vessels with cargoes that resort to it are very small in tonnage, and the majority of the fishing smacks are English. In fact, the fishermen at Howth are buyers of fish instead of catchers. It is to be regretted that more energy is not displayed by the natives of Howth in developing the fishing resources lying off that ancient promontory.

The Lower Boyne Navigation Works of Maintenance are reported by Mr. P. J. Dodd, the superintendent, and they comprise in general the same class as those reported by Mr. Adams. The Boyne Drainage Maintenance Works, as reported by Mr. R. A. Gray, C.E., shew a very small amount of work. The cleaning up of some 480 perches of minor drains in the fourth division of the district at a cost of £74 10s., and the extension of the upper part of the channel of the Miltown river towards Miltown village for the length of 270 perches at a cost of £25. The growth of weeds and their eradication are reported as troublesome labour.

Mr. Robert Manning, M. Inst. C.E., reports the works in operation at the Royal Harbours. Those relating to Kingstown were mentioned in another report in our previous notice. At Howth during the past year the repairs of the sea slope of the eastern pier were pushed on. A length of 280 ft., or 1,850 superficial yards of the slope was completed, in which were used 523 cubic yards of concrete blocks, and 215 cubic yards concrete punned between the open joints of the rough pavement. We do not remember to have heard of the word

"punned" used before in connection with building works. The word is more comical than technical. Engineers are generally not giving to punning, though there are doubtless punsters among them who can crack a joke in the abstract or the concrete. A heavy easterly wind last February did some damage to the works of repair before the "punning" was performed, but this was soon after made good by the punsters with cement of the best temper.

At Donaghadee Harbour, Co. Down, and Dunmore, Co. Waterford, works of repair, "punning" included, were carried out. The works at the Fishery Pier of Tarbert, Co. Kerry, some time in operation, have been completed; and those at Glin Pier, Co. Limerick, commenced in 1873 by Messrs. Mannix and Slade, contractors, are approaching completion. Mr. William Molloy, the Inspector of the Lower Shannon, in his report respecting this latter pier, says the site of this pier has been admirably chosen, as it will be free from any set of the tide, and afford shelter to vessels from almost all the prevailing winds in this part of the Shannon. The works at Courtmacsherry Harbour, Co. Cork, are proceeding slowly; the foundations of the walls are laid down. The excavation is in a backward state owing to the large proportion of rock that has to be got through. The works at Buncrana Pier, Co. Donegal, were finished last September. The works at Courtown Pier, Co. Wexford, are approaching completion. Last November the works at Giles's-quay, Co. Louth, were commenced, and later on the making of concrete blocks was begun. The work is proceeding. At Kilmore Pier, Co. Wexford, the works of maintenance have been completed; and at Port Oriel Harbour, Co. Louth, new works of construction have been commenced. Respecting Inishboffin and Inishshark Pier, a work of some importance, it is reported that the work would have been finished long since if masons could be got to work here, but none would come. Mr. Patrick Duffy, who is in charge of the works, writes:—I had to train up the men of the island to dress and set the stones on the pier, in the use of quarry tools and in blasting rocks. The men on the works now are indeed very handy men, well fit to go into any public work." All honour to Mr. Duffy; he deserves praise for instructing the hardy islanders of Inishboffin how to work and benefit themselves and their country. The works at the Inishshark boat slip consisted of excavating a boat slip in rock and gravel, setting oak skids on stone blocks, and fastening same with oak treenails. The new works done on these islands will be an immense boon to the fishermen in protecting their boats and facilitating their fishing operations.

Mr. James N. Merrick reports on the works under his charge, which includes the state of the Upper Shannon Navigation from Shannon Harbour to Lough Allen, also the Boyle Water Navigation, from the Junction with the Shannon to Drum Wharf, near Boyle. The works of maintenance were of the usual class. The coal traffic on the Lough Allen Canal continues in a satisfactory state—2,102 tons of native coals from the Spencer Wharf pits at west side of Lough Allen were passed through the canal.

Mr. William Molloy, Inspector, reports on the state of the Shannon Navigation (Limerick District). The works of maintenance are similar to the preceding.

Coming to the subject of Landed Property Improvement, as dealt with in the inspector's annual reports, 1874-5, Mr. William P. Prendergast, speaking of the North-Western District, comprising the counties of Fermanagh, Cavan, Monaghan, Leitrim, and Sligo, says the greater number of applications for loans are now made for building dwelling-houses, and notwithstanding the increased cost of materials and the increase in wages, there is a greater desire on the part of landowners to put up substantial slated houses for their labourers and farmers than at any former period. We are glad to hear this, but we fear the desire is far from being general, and in some recent instances that we have noticed the evidences of improvement were not what we could have wished. The inspector says—"The design for cottages that obtained the Duke of Abercorn's prize is considered very good, and is often adopted, and the plans printed by the board have also proved very useful." Mr. Prendergast speaks of the facilities given by such establishments as the Messrs. Martin, of the North Wall, Dublin, who provide all the timber and framings, and thus enable proprietors to get without delay what they may require.

The inspector writes:—"The use of concrete, wherever it has been tried, shows that when well made with the best quality of Portland cement, it is an excellent material for walls, the houses proving especially warm and free from damp." We have often in these pages spoken in favourable terms of the use of concrete, and we hope to see it more generally used in cottage building, provided that it is properly made out of good materials.

On more than one occasion, when noticing these annual reports, we expressed a wish that some of the designs or plans spoken of as good, were given in these reports, that the public might see what they are like. We cannot commend what we have not had an opportunity of seeing. The Duke of Abercorn's designs may be excellent for aught we know, but we do not remember having seen them. We hope they are superior to the Duke of Devonshire's, noticed in our last; but even if only as good they would be still an improvement over the mud hovels to be seen everywhere.

In conclusion, Mr. Prendergast tells us that the increase of money among the farmers, the establishment of numerous banks in the country towns, and the spread of commercial knowledge has caused the more prosperous among the country population to make efforts to obtain better dwellings than formerly. We would like to see elementary education more general among the children of the working population. Hundreds of them are still growing up in ignorance in villages and towns.

Mr. Edmond Murphy reports as to the counties of Down and Donegal, the progress made with farm buildings, labourers' cottages, planting, and general reclamation. He particularly mentions some works of drainage carried out at Foxhall, by Philip Doyne, Esq., and the successful employment of dynamite in the works of blasting and clearance. The only danger the inspector fears is, the force with which fragments of the rock are sent flying to great distances. He advocates smaller charges of the explosive. He speaks of the wonderful execution done by two ounces of dynamite put into a

\* Forty-Third Annual Report from the Commissioners of Public Works in Ireland. Dublin: Printed by Alexander Thom.

6-inch hole in a large sunk boulder. For surface boulders, a couple of charges placed on the top of the stone, and covered and weighted by another boulder, will break up both; the only difficulty here is that you cannot find the pieces. Mr. Doyne uses dynamite in the removal of old roots of trees, and it splits them up into firewood.

The Corporation of Dublin ought to try dynamite in the cleansing of the Liffey. It might be very handy in lifting the sewage from its bed, and not rendering the condition of the quays alongside much worse than they are at present. It would certainly save the use of hopper barges, and give the scavengers in the streets something to do. We fear the Main Drainage Committee won't adopt the suggestion, as it might put a quietus to their darling scheme no less pure, though far more offensive and ponderous in its dimensions.

Mr. Murphy reports that Lieutenant-Colonel Stewart has carried out a perfect piece of sod drainage on an alluvial bottom bordering on the Swilly River, and has put in some capital flood valves, thus raising the produce of the land from £8 to grass worth £6 per acre. The inspector thinks it would be desirable if the board would issue drawings and specifications for simple tide or flood-valves, as it would secure efficient instruments and give information in the proper construction of these rules for the guidance of the inspectors or of those wishing to use them.

Some "admirable cottages" are reported as being built by Colonel Nugent at Portaferry, under the superintendence of his agent, George E. Bowen, Esq., who has also executed some planting for shelter in "first-rate style." At Donaghadee, Daniel Delacherois, Esq., has erected, we are told, some farm buildings which are "a model of efficiency and execution." We would like to see some fuller description of the style and arrangement of these buildings than what we are here presented. We can glean no knowledge as to construction or materials from terms such as "admirable cottages," "first-rate style," "model of efficiency and execution." This description is neither fish, flesh, nor bone, although it is satisfactory to learn that the work is done. We agree with the inspector in thinking that it is highly desirable that there should be a preliminary inspection in all cases of grants for buildings, for in many instances he says that he finds that the sites selected and the levels adopted are not such as he would have sanctioned had he been previously consulted.

We will deal with the remainder of the reports under the Landed Property Improvement Acts in next issue, when we shall probably have something further to say on the character of the improvements in the matter of drainage and labourers' dwellings.

#### THE PEOPLE'S PARK, WILLIAMSTOWN.

ON Wednesday last, at the meeting of Blackrock Commissioners, the chairman stated that Mr. Niven, of the Model Farm, Drumcondra, had informed him that he would undertake to supply a design for the People's Park at Williamstown, with an estimate of the cost, exclusive of matters connected with drainage, sewerage, embankments, and architectural works, for £20. It was resolved that a plan should be taken from Mr. Niven. A tender from Mr. John Pluck, for the construction of a dam and channel to conduct

the Elm Cliff stream through the People's Park under the railway into the sea, at a charge of £620, and for the construction of a pipe sewer from Merriem-avenue to Phoenix-terrace for £190, was accepted.

#### STANLEY'S MATHEMATICAL DRAWING INSTRUMENT MAKING WORKS, SOUTH NORWOOD.

A VISIT paid by us to the mathematical instrument making works, recently established at South Norwood by Mr. William Ford Stanley, afforded us considerable pleasure. Mr. Stanley has been hitherto known for many years as a maker of repute in Holborn, London, and not merely a seller of, all kinds of mathematical drawing instruments, as well as an inventor and improver of several more, for the use of architects, engineers, surveyors, and others. The thought occurred to Mr. Stanley's inventive mind some years since that, as several forms of labour, simple and complex, were being brought under the dominion of machinery, the making of mathematical instruments ought to form no exception, and that machinery and steam power could be utilised to any extent in the production of perfect instruments, and that the cost to producer and purchaser would eventually be considerably cheapened. The task to be undertaken was an anxious, and was likely to be an expensive, one, for the transition from hand labour and common lathes to steam-driven machines necessitated not only the making of a number of separate machines, but included the making of a number of subsidiary tools for use, and in the teaching of a number of workmen how to use these new tools with safety to themselves and with as little serious loss as possible in the matter of time and material to the employer. After an outlay of several thousand pounds, Mr. Stanley has now in operation at his manufactory at Norwood machinery for the production of all the mathematical instruments known as the *half-set case*, which includes compasses with a moveable leg, ink point, pencil point, lengthening bar, drawing pen, &c., and with his present resources is capable of producing any amount of these instruments, with their cases, of all sizes and of any material needed. After a short time he will have mechanical appliances perfected for producing what is technically known as the *set case*, and doubtless in due time he will further produce the *full-set case* and the *long-set case*.

In his workshops at present he has machines in motion to the number of 25 or more, solely engaged in the adjusting and finishing of the instruments of the half-set case, the casting being a separate and previous operation, carried out in another part of his works. In one room are cam machines for dividing and marking the scales upon rules, and for producing a variety of scales used for measuring and drawing purposes. This dividing machine can be adjusted and used for marking boxwood, iron, brass, German silver, horn, ivory, vulcanite, or other material. The movement of the machine is perfect, and there is alternately a long and a short action in marking the indents or lines that form the scales. The division of labour necessitated in the many operations belonging to mathematical instrument making renders separate rooms or workshops to be allotted to each class of workmen, and these are provided in Mr. Stanley's buildings, many of them being on the same level, so that as soon as a number of parts of one instrument are ready they are passed on into another workshop.

The principal machine-room, or workshop, contains a number of compact machines, all driven by steam power, and worked on the cam principle, which, commonly speaking, may be described as a plate with curved sides fixed on a revolving shaft for converting a rotary motion into a rectilinear one. This principle is utilised to a great extent, and in a very beautiful manner, in the

various operations belonging to the final cutting, rounding, shaping, and finishing of the heads, sides, faces, chamfers, and diminishing ends of the pairs of compasses and other drawing instruments, and equally so in the stamping and marking processes. When the head of a compass is perforated and also slit for the jointing operation, the centres or eyes of the pair are worked from in each after-operation; for, whether the motion be horizontal or circular, so long as the same centre is maintained in adjusting or fixing the article worked upon, the operation of the machine will be perfect,—hence every leg, arm, or corresponding part of an instrument will really correspond in all its details, and exhibit no irregularities.

Although Mr. Stanley and his brother had to invent machines, construct new tools, and educate or teach their workmen, it is surprising with what facility some of the young men in his workshops perform their allotted work with the aid of the machines. In a second the circular or rotary motion of a cutting tool is changed into a rectilinear one, and the perforating or cutting tool after boring, can be made to slide from right to left in a grooving or rabbeting process. The brass or other metal is bored, slit with a saw, cut, planed, traversed, rounded, quirked, stamped, marked, and otherwise finished, as circumstances may warrant, by the aid of machines in Mr. Stanley's works.

There is a separate workshop on the premises where the tool makers are employed in forging and finishing tools required by the workmen in the production of the mathematical drawing instruments, and several of these tools are the invention of Mr. Stanley. There is also a cabinet-makers' or case-makers' shop, where all sizes of cases for mathematical drawing instruments are made—oak, walnut, mahogany, rosewood, &c. There are machines in this workshop which perform their operations with the same swiftness and exactness as those above stairs. The dovetailing, mortices, or sinking for the locks, hinges, and angle brasses, and other fittings are cut by machines, so the workmen have little more to do than glue and screw. Substantial unveneered cases of mahogany or walnut are made by Mr. Stanley, in which the straight dovetailing, or, more properly speaking, the combing is done by machines, and done so accurately that sides and ends fit into each other so closely and tight that glue might nearly be dispensed with.

As we are not writing an exhaustive description of Mr. Stanley's works, but giving merely a brief outline, we will only remark further that his steam engine and driving power and self-feeding furnace is of the best description. The waste brass, cuttings, shavings, dust, and other brass "waste" is not wasted, but is passed through a magnetizing machine where the particles of iron are caught up by a number of revolving magnets upon a spindle, and thus the brass, which under other circumstances would be a loss or waste with its admixture of iron, is saved for future casting. In passing through Mr. Stanley's works we examined some of the finished drawing instruments in that part of the building called the "Finishing Room," where a number of workmen were engaged in giving the final touches to the articles manufactured. We came unhesitatingly to the conclusion that no mathematical drawing instruments could be better finished, and that they might safely challenge comparison with any instruments made abroad or at home. It is worthy of note that the workshops in general are airy, lofty, well lighted, and ventilated, which must afford great comfort to the workmen, and facilitate their operations.

We believe that Mr. Stanley's machine works are the only ones of the kind in this country, and his enterprise is entitled to recognition at the hands of his countrymen, and more especially that architectural and engineering constituency in the service of the Government and apart that he has so honourably served for long years as a practical mathematical drawing instrument maker in London.



## ROADS AND PAVEMENTS—

THEIR CONSTRUCTION, WEAR AND TEAR,  
SANITARY ASPECTS, ETC.

(Continued from page 197.)

THE CONCLUSIONS AS TO ROAD CONSTRUCTION  
AND PAVEMENT OBTAINED BY MECHANICAL  
AND ENGINEERING SCIENCE AND ART.

The general conclusion arrived at is that, as a rule, all loud noise from vehicular transit in the streets—all grinding and rumbling of wheels, and jolting and banging of carts and carriages—all vibrations of the houses and shaking of doors and windows denote a greater or less waste of force, and a low state of science and knowledge on the part of those who are charged with the construction and maintenance of the public thoroughfares. To the same ignorance may be charged the greater proportion of all dust, dirt, and mud, and all bad smells on street surfaces, as well as of the dirt on clothes and on the person from the dirt and dust of the street, and the nervous agitation, restlessness, and sleeplessness at nights from the noise of carts and carriages in the streets.

LOSS OF TRACTIVE FORCE BY BAD ROAD  
CONSTRUCTION AND BAD CLEANSING.

The loss of tractive force even from small elevations, such as those occasioned chiefly by bad cleansing, is stated in Sir Henry Parnell's work on roads as the results of experiments. The draught is stated to have been:—

On a paved road .. .. .	2
On a well-broken stone road in a clean state ..	5
On the same covered with dust .. .. .	8
On the same wet and muddy .. .. .	10
On a gravel or flint road, clean .. .. .	19
On the same road, wet and muddy .. .. .	32

The effect of small elevations of surface in occasioning loss of force, may be observed in the retardation of the heaviest railway trains by scattering gravel on the railway.

It was shown by experiments with Sir John McNeill's "road indicator," that by a granite tramway, on a slope of 1 in 35, the power required to draw a ton was reduced from 294 lbs. to 132 lbs.

Mr. Guilford Molesworth, in his text book of formulæ for engineers, gives as the resistance in pounds per ton on different roads (exclusive of gravity). On

Stone tramway .. .. .	20 lbs. per ton.
Paved roads .. .. .	33 " "
Macadamised roads .. .. .	44 to 67 " "
Gravel .. .. .	150 " "
Soft, sandy, and gravelly ground .. .. .	210 " "

These may be stated to be the chief results hitherto obtained in England as to the traction on roads.

The results of trials made on different roads in France by General Morin and M. Dupuit are thus stated by Professor Fonnssagrives:—

Roadway asphalted .. .. .	1
Roadway paved, dry, and in good condition ..	2.0 to 1.5
Roadway paved and in mediocre condition ..	2.5 " 2
Roadway paved, but covered with a little mud ..	2.7 " 2
Macadam in good condition and dry .. .. .	3.3 " 2.5
Macadam, wet .. .. .	3.3
Macadam in a mediocre condition .. .. .	4.5
Macadam covered with dirt .. .. .	5.5
Macadam with the stones loose .. .. .	8.2 " 5

Experiments made by the direction of the French Government on the tramway between Sèvres and Versailles, showed that a horse on a level tramway draws three-and-a-half times the weight, at the same speed and with the same expenditure of power, that he can do on an ordinary road. Up a gradient of 1 to 100, he is capable of drawing 2.25 times the weight he can do up the same gradient on an ordinary road, and up a gradient of 1 to 25, he can draw one-and-a-half times the load he can do under similar circumstances on the ordinary road.

In the varying conditions of the different roads, or of the same road at different times, wet or dry, as also the varying sizes of the vehicles, with their wheels and their weights, such results can only be taken as approximate, but they are sufficient to indicate the enormous waste of force and expense incurred in the traffic of the metropolis and of other

districts by the wide differences of conditions visible to the eye, the results of unscientific and inferior management. In other words, they indicate the gains derivable from appropriate scientific treatment.

The losses occasioned by differences of conditions of the surface are aggravated by frequent unnecessary differences of inclines. Assuming the surface pavement of the streets to be smooth, and as good as the surfaces of iron railways, the loss of force from street inclines will be as great as it is demonstrated to be on railway inclines. The late Mr. Butler Williams, C.E., formerly engaged on the Ordnance Survey in Ireland, and afterwards Professor of Geodesy at the College of Civil Engineers at Putney, gave some evidence on this subject before the Health of Towns Commissioners in 1844. He displayed a study of the plan of Sir Christopher Wren for the rebuilding of the City of London after the Great Fire. He presented that plan as displaying the enormous loss by ignorance or by the absence of science in the directing minds of local public works. He showed the gain in distance by direct lines, as well as the gain from avoiding the losses of force by bad gradients. To illustrate this loss he got a survey of two lines, one from Holborn to Cheapside, and the other from Fleet-street to Cheapside, and taking the then traffic over these two lines, he showed that the loss of time and power entailed by the defective gradients and increased distances could not be less than one hundred thousand pounds per annum. Such losses of force from defective gradients, it will be perceived from a view of any contour map, were more or less entailed over the whole area, from setting aside Sir Christopher Wren's plan of rebuilding the city as nearly as possible on a level plane. It may be mentioned, in the way of illustration of administrative principle, that Sir Christopher Wren would have excluded blind alleys and the inferior dwellings of the wage classes, and also graveyards and noxious trades; and yet have given to every owner the same area, though perhaps in a different, and invariably in a better position, with frontages in wider streets, with better sweeps of winds and ventilation. The plan was approved by the King and the most instructed minds of the day; but the corporate, or what may be called the vestral minds of the day, prevailed in retaining the same old lines, the old gradients, and the old structures, and, in doing so, it is estimated by sanitary authorities, they entailed upon the population, besides the loss upon the traffic, a death-rate greatly in excess of what there would have been under the rudimentary sanitary conditions which Sir Christopher Wren's plan would have achieved.

The professor observed—"With respect to old districts, improvements of importance might be accomplished without interfering with the convenient access to houses, and at very moderate cost, by taking advantage of the repavement of streets, to level or reduce, by a few feet, the mere surface irregularities, such as may be noticed in many of the thoroughfares of the metropolis. In the repavement of the streets, as generally conducted at present, the old curves following the existing irregularities of the surface are retained, whereas, not unfrequently, an excavation of even as little as one or two feet at one point, and a corresponding filling up of one or two feet at another point, would remove irregularities which, as far as they go, are objectionable. Every foot reduced in the rise of a thoroughfare open to great traffic produces a corresponding saving of power by no means unimportant." In illustration of this point, it may be mentioned that Molesworth states that the traction due to the inclination of the road alone is always the load multiplied by the angle of inclination.

After adducing various examples of the wastefulness of ignorance, Professor Butler Williams observed, "they show that, for amendment, you must have men of extended views, capable of embracing all the elements that combine to produce the results that ought to be obtained, and that it can scarcely

be expedient in most cases that men of limited education should be called upon to decide on important sanitary matters."

ECONOMIC PRINCIPLE OF THE DISTINCT PRO-  
VISION FOR WHEEL TRACKS AND FOR HORSE  
TRACKS IN ROADWAYS.

The first conclusion arrived at by the General Board of Health for the improvement of the pavement of the metropolis was that provision must be made of smooth tracks for the wheels, distinct from the provision for the track and the foothold of the horses. This distinct provision had, indeed, long been made and successfully applied in the cities of Northern Italy. Lord Palmerston once called public attention to it, and expressed a hope that so luxurious and excellent a system might be introduced into this country. Mr. A. Stevenson, C.E., calls attention to it in his article on road construction, in the *Encyclopædia Britannica*. Mr. P. Le Neve Foster, jun., the son of our respected secretary, a civil engineer in practice in Italy, has been so good as to give us sketches and a report descriptive of the method in which the principle is applied in Milan and other cities, together with the costs in detail. On wide thoroughfares, as at Milan, there are three or four lines of wheel track of this description. On some, however, the horse track is paved with Dutch clinker brick. The principle of the Italian roadway described has, indeed, been applied by stone trams as wheel tracks, on a part of the road to the Commercial Docks, at the east end of London, in several narrow streets in the City of London, at Holyhead, and in other places. Some experiments made by Sir John McNeil on the granite tramways at Holyhead, and others on the granite tramways near the Commercial Docks, demonstrated that by their use a saving of more than half the horse-power, as compared with the common roads, was effected. It was shown that whilst the horse retained his rough foothold, considerable gain in force is obtained by the tramways in ascending inclines. On an incline of 1 in 20, the power required to draw a ton was reduced from 295 lbs. to 132 lbs. An incline of 1 in 35 might be ascended at a good rate of speed, and descended at 12 miles an hour without risk. In passing over these granite tramways, horses will have two feet on the roughened foothold; they do not fall, and generally there is no more slipping on them than on the common granite roads in the common conditions as to cleansing. When they were first laid down in England, each wheel track had kerbs; but in recent constructions they are dispensed with, and vehicles may freely move from one part of the road to another.

The General Board of Health contemplated the general adoption of the principle of the stone tramways, or of the Italian smooth wheel track, as in great part a sanitary measure for the entire metropolis. By reducing by one-half the tractive force required for transit, by enabling a single horse to do the work of two, a reduction would be effected of half the dirt and dust of the streets. By the smooth wheel tracks they reduced the greater part of the noise of the street traffic, and gave to carriage riders, who experienced it in the northern Italian cities, what they called luxurious as well as less expensive transit. Recent observations, made at the instance of this Committee, show that whilst the wear on the horse track is as one, on the wheel tracks it is as two, which is about the proportion of the weight of the cart and load to the horse. If the wheel wear be taken on the smooth track, on which the wear is inconsiderable, it gives a proportionate reduction of the general wear of the road. In a Bill for additional power for the first consolidated Commission of Sewers, powers were taken to connect the service of the care of the road surface with the care of the road, as well as the house drains and sewers, which properly belong to any civil arrangement pretending to system. It contemplated bringing all the metropolitan streets and roads, suburban as well as urban, under

unity of competent scientific administration—the suburban, as well as the urban, of necessity, for economy as well as efficiency;—for if the change were restricted to the urban district the gain would only be partial, inasmuch as a large proportion of the interior traffic being from suburban districts, if the rate of tractive force were unaltered for the suburban districts, the same amount of tractive force must continue through the whole district. It was therefore contemplated that the principle of a separate provision for the wheel tracks should prevail over all the suburban roads. The developed application of these views was prevented by legislative exigencies, into which it is unnecessary to enter. Such measures would, it is considered, have followed a competent examination of existing conditions of the metropolis, and also of the means which art and science had provided for dealing with them.

#### APPLICATION OF MECHANICAL AND ENGINEERING ART AND SCIENCE TO THE CLEANSING OF THE PAVEMENTS IN THE METROPOLIS.

However well a city may be laid out, however complete may be the paving of the streets, a great part of these advantages will be lost if they be not regularly and completely cleansed. Cleanliness and dryness, complete surface as well as subsoil and household cleanliness are the points on which the sanitary improvement of an urban population chiefly turns.

The attention of Mr. (now Sir) Joseph Whitworth was given, in 1840, to the bad cleansing of the streets of Manchester by hand labour, and he directed his great scientific genius to the means of producing superior cleanliness in them by machinery. He invented a machine which, while going at the rate of only two miles an hour, with brooms three feet wide, would clean nearly sixty superficial yards per minute, and lift the mud into a cart for removal. This was the average rate of work done by about sixty men. He constructed machines, and presented prolonged demonstration of their power in London and also in Manchester. He offered engagements, in Manchester and also in London, to sweep the streets thrice as often as under the old system, for the same money. But these demonstrations and offers were presented to minds which proved to be incapable of mastering them, and the machine was rejected on the ostensible ground that it would interfere with the labour of poor people, or of paupers.

As to surface cleansing, the Commissioners of the Board of Health, having examined the subject and got trials made, came to the conclusion that the best cleansing by the broom alone was very imperfect—inasmuch as the broom alone, whilst it removes the greater proportion of solid or semi-fluid matter, spreads and daubs the pavement with that which is sticky and adhesive.

For cleansing street pavements, as well as for the cleansing of a paved court-yard or floor, the broom and the dry mop do not alone suffice, but need the aid of water for perfect cleansing and purification. During the prevalence of cholera, and periods of severe epidemic visitations, especially in hot weather, the General Board of Health, whose orders were at that time law, directed that filthy courts and alleys, the seats of fever, should be cleansed by strong jets of water, and where the immediate water service was insufficient, fire-engines were directed to be used to cleanse the walls of the foul habitations; to dissipate the close stagnant atmospheres, jets were thrown up as spray. By these means such freshness was given to the air and relief to the lungs as is experienced after heavy thunder showers. The inhabitants of the oppressed districts expressed their pleasure at the relief they received, and their hope that the practice might be continued.

The reduction of the time occupied in cleansing thoroughfares of great traffic is of economical value, but speed is everywhere of great sanitary importance for the quick removal of dung droppings and the prevention

of the vitiation of the air by evaporation and by the dispersion of pulverised dung and other matters. Speed is also of economical importance for the saving of manure, as "fresh" manure is upwards of a third more in price and value than old or dried manure. The effectual hand-scavenging done at Manchester was from 1,000 to 1,500 square yards daily by each man. When Sir Joseph Whitworth's machine was in operation, going at the rate of 2½ miles per hour, it swept the same extent of surface in a quarter of an hour. But the average extent of surface which could be so swept depends on the distance of the places of deposit to which the matter taken up must be removed.

(To be continued.)

#### THE ROUND TOWER AT CLONES.\*

THIS building may be regarded as one of the earliest structures of its class remaining in Ireland. The doorway and other apses are, when perfect, covered respectively by horizontal lintels, and in no part of the edifice does any indication of an arch appear. The doorway, which is placed some eight feet above the level of the projecting base-course, from which the tower rises, measures 5 ft. 4½ in. in height, by 1 ft. 8½ in. at the top, and 1 ft. 11 in. at the bottom. The thickness of the wall at the soffit is four feet, but the sides of the opening have been tampered with on the interior, so that only the outer facings of the jambs remain intact. This alteration has given rise to a statement that the doorway splayed inwardly, an assertion which is no doubt perfectly correct, but to which should be added that the peculiarity is not original. The present floor is raised about three feet above the level of the adjoining cemetery; here the diameter of the tower, on the interior, is eight feet nine inches. On a level with the doorway-sill stood the first floor, which was supported by an offset varying from two to four inches in depth. The second floor, which was lighted by a small quadrangular opening, rested partly upon an offset, but chiefly upon joists, for the reception of which five holes are distinctly visible in the wall. The upper floors (there were five in all) were similarly sustained, and each, except the topmost, was lighted by a single quadrangular window. There can be no question that the Clones tower, like all other buildings of its class, terminated in a bencobham, or conical stone-roof. This, however, no longer remains; and, at first sight, the wall, as at Kilkenny, Cloyne, Kildare, and elsewhere, would appear to terminate in a mediæval parapet. A slight observation, however, will convince any educated eye that the seeming crenelles are but dismantled apses of the topmost apartment. These are four in number, formed with unsplaying sides, considerably inclined, and face as nearly as possible the cardinal points. All have been denuded of their lintels; and between them, at more than one point, the moulting wall rises, presenting an irregular "corbie-step" appearance.

It is probable that, like many of our earlier bell-houses, that of Clones was not of any very considerable elevation. Its height, from plinth to cornice, may be estimated at about seventy-five feet. But little of the frame of the building has been lost, as plainly appears from the position of the topmost apertures. The circumference at the present level of the graveyard is, as nearly as possible, fifty-one feet—it would, of course, be slightly more at the base-offset. With regard to the masonry, it may be observed that it is of a very rude description, not one dressed stone appearing. Probably, however, the unusually rough appearance of the exterior, especially about the doorway and lower portion, may, in a great measure, be attributed to the action of fire. The surface

of the interior is smooth and regular, presenting a remarkable contrast to the external facing. We read in our Annals, under several dates, of the destruction of the city by fire. Perhaps the most notable burning of Clones and its belongings occurred under De Lacy, in the early part of the thirteenth century.

It is not my intention, at present, to enter at length upon the question of the supposed mortuary purposes of our towers; though here, during an excavation made some nineteen or twenty years ago, human remains were rather plentifully found. The work of exploration alluded to appears to have been undertaken by Mr. Edmund Getty, of Belfast, who on that occasion was accompanied by several gentlemen who seem to have rendered valuable assistance. The result of their joint labours was published in the fourth volume of the *Ulster Journal of Archaeology*. It appears that, after a quantity of *débris* had been removed, two ancient floors were discovered, the first at a distance of six feet and a half from the sill of the doorway. This was formed of clay, and in the soil between it and a second floor, formed of a "thin coat of lime" placed some eighteen inches further down, were discovered a few fragmentary remains of human bones, accompanied by pieces of charcoal, and "irregular-shaped flags, with traces of fire on their surface." Beneath the lime floor, at irregular distances, and placed without order, "considerable human remains, in a state of very great decay, some of a child, some of adults," were found among earth and stones. Here were four or five skulls: "They were so damaged that the exact position they lay in could not be correctly ascertained, although the relative position occupied by each was sufficiently perceptible. They lay nearly as marked in the accompanying plan, and unconnected with other remains; proving, as far as they were concerned, that it must have been human bones, and not bodies, that had been thus deposited."

The finding of a number of skulls and other portions of the human body, beneath a floor of a round tower, might, at the first glance, appear to furnish evidence, if not proof, that those buildings had been erected for mortuary purposes. A little consideration, however, will show that very slight, if any, importance should be attached to a circumstance like that referred to. What is more reasonable than to suppose that the builders of a tower, when excavating for a foundation, deemed it necessary to remove certain human remains which had been there buried? We know that many of our towers stand in very ancient cemeteries. These bones the diggers would religiously re-inter on either side of the line of work, in a position as near as possible to the site of their former resting-place. Within the bounds of a tower not only one but several skeletons might be enclosed. Our "Journal" records the discovery, on the site of a long-used dung-hill, which had been scraped rather more deeply than usual, of a Pagan burial urn. And Dr. Reeves, in his account of the "Ancient Churches of Armagh" (p. 53), notices the curious fact of the finding of a primitive sepulchral vessels by labourers employed in excavating the floor of a vault which had belonged to a thirteenth or fourteenth century ecclesiastical structure, at Bishop's Court, near that city. What if a round tower had been erected on either of these sites, and explorers had come to dig? What if some early Christian community had selected the beautiful and commanding position of Drumnakilly, near Omagh, as the site of a monastery and cloigtheach? There, in subsequent ages, some treasure-hunters might have found Pagan urns, laid in tiers, one under the other, to a depth of more than eight feet in the soil!

Of comparatively stunted dimensions, exhibiting not a single cut stone, and presenting in its doorway and other openings only flat-headed quadrangular forms, with inclined sides, similar to those found in cathairs and cloughawns, the Clones tower may be looked

\* From paper by Mr. W. F. Wakeman, on "The Ecclesiastical Antiquities of Clonain-Eola, now Clones," in *Journal of the Royal Historical and Archaeological Association of Ireland*.

upon as one of the most ancient structures of its kind remaining in Ireland. But it cannot, therefore, be confounded with buildings of a Pagan age found in this country, as its masonry is well cemented with lime mortar, a circumstance never in a single instance observed in ante-Christian architecture in Erin.

### NEW INSURANCE OFFICES.

THE directors of the Scottish Widows' Fund Society having secured the site of premises at corner of Westmoreland-street and College-street, are having new offices erected thereon, from the designs of Mr. T. N. Deane, R.H.A. The material will be Mansfield stone. Mr. Alexander Parker, J.P., in laying the foundation stone on the 22nd ult., expressed a hope "that the building might add another item to the many which have recently been erected to embellish the good city of Dublin."

### HOME AND FOREIGN NOTES.

ALL SAINTS' CHURCH, EGLANTINE.—This church, erected from the designs of Mr. Thomas Drew, R.H.A., and of which we gave illustrations in our number for January 15th, 1875, was consecrated on the 13th ult. by the Bishop of Down and Connor.

MEMORIAL TO THE LATE MR. M'ELWAIN.—An exceedingly chaste and beautiful mural tablet has been erected in the Wesleyan Methodist Chapel, Circular-road, Coleraine. It consists of white marble, surmounted with an urn, the whole resting on a base of black marble. The following is the inscription:—"Erected to the memory of Archibald M'Elwain, by the members of the Wesleyan Methodist Church, on the Coleraine Circuit, in grateful appreciation of his deep interest in the prosperity of God's work. He entered into rest 27th December, 1874. 'He was a faithful man, and feared God above many.'" The workmanship reflects much credit on the taste and skill of Messrs. J. Robinson and Son, Belfast, by whom it has been erected.

THE PRESERVATION OF WOOD.—M. Lostal, railway contractor, of Ferny, has communicated to the Society of Mineral Industry, at St. Etienne, France, the results of his observations on the effect of lime in preserving wood, and his method of applying it. He piles the planks in a tank, and puts over all a layer of quicklime, which is gradually slaked with water. The wood is said to acquire remarkable consistence and hardness, and to be quite safe from decay.

TRACING PAPER.—A beautiful, transparent, colourless, tracing paper, for architectural and other draughtsmen, engravers, &c., is prepared as follows: First make a clear varnish from Demerara resin; then place the sheets of paper flatwise upon each other, and spread the varnish evenly over the top sheet by means of a camel's-hair or other fine brush, until the paper appears perfectly colourless, without, however, the varnish thereon being visible. Then remove the first sheet from the pile and hang it up to dry by one edge. Continue in the same manner with the other sheets. After being thoroughly dried, paper thus prepared is capable of being written upon either with chalk, a pencil, or a steel pen. It retains its colourless transparency, and does not become yellowed by time, as is generally the case with that prepared in any other way. —*P. & P. Trades Journal.*

IMPROVEMENT OF WASTE LANDS.—An experiment, attended with gratifying results, has been tried in Cornwall, where upwards of 200 acres of the Connor Downs have been reclaimed by the Cornish miners. The land was leased to the men for ninety-nine years at a yearly rent of half-a-crown an acre, quite as much, if not more, than the property had formerly brought in to the owner. The size of the holdings varied from three to ten acres, and by degrees the workmen have transformed what was before nothing better than waste common land into a thriving and pleasant garden. Most of the miners have built houses and outbuildings for themselves on the plots, and nearly all are prospering, happy, and contented. The land has been tilled by the spade, after mine hours were over, and sand and sea-weed have been found to act as a capital manure. Wheat and potatoes are the principal crop, but all vegetables are grown. Nearly every leaseholder keeps a cow and a pig, whilst a few keep a pony or donkey and cart. The experi-

ment has operated most beneficially in improving the status and the health and morals of the miners. It is now suggested that the great mine and land owners in the north of England should follow this excellent example, as there are thousands of acres of poor and unprofitable land on and about the surface of mines; and the steady workman once transformed into a leaseholder, with a house and land of his own, would become a happy, clean, and sober man.—*Builder.*

### THE LIFFEY.

*A la (mad) mode.*

LINES WRITTEN ON THE METAL BRIDGE  
ON A MOONLIGHT MIDNIGHT.

[THE state of the Liffey is a favourite theme with our Dublin poets and rhymesters. Appreciating the *animus* and humour of the writer more than the goodness of the verse, we extend to it the liberty of an apparition in these pages as an encouragement to our correspondent.]

I stood upon the bridge at night,  
And calmly viewed the scene;  
Beneath me flowed the murky flood,  
Of ugly shade, I ween.  
And as I looked down on the flood,  
A steam from o'er it rose;  
In vain I sought my handkerchief—  
My eyes began to close,  
And I began to dream!

Methought I saw a thousand knights  
In armour bright arrayed,  
And, as they passed by Ormond-quay,  
Each horseman drew his blade.  
At last one spoke—it was their chief—  
And stately was his manner;  
He said—"Unfurled our noble flag!"  
(It was the Irish banner)—  
I saw it in my dream!

I looked upon the other side,  
And lo! there was arrayed  
A goodly clan of Danish foot—  
Each soldier drew his blade;  
A deadly silence reigned o'er all,  
At last one spoke their chief,  
He said—"Prepare to meet our foe!"  
Our actions must be brief!"  
I heard him in my dream!

Then suddenly the horsemen charged—  
Their war-cry rent the air.  
The chieftain of the Danish foot  
Spoke one word—"was, 'Prepare'!"  
But what is this? the horsemen turn,  
And quickly fly the spot.  
What! are they cowed—the Irish cowed?—  
No, surely they are not—  
It must be all a dream!

But see! the Danes are flying too,  
Though on the other shore,  
Their voices swell into a cry  
Of horror in the roar!  
I ask a soldier passing by  
What means the awful rout?  
"Fly, stranger! fly, and save yourself!"  
He said; "The tide is out!"  
It waked me from my dream!

F. I.

### A STORY OF THE MAIN DRAINAGE.

BY ONE OF THE COUNCIL.

MR. Cornelius Dennehy, who is not an engineer, architect, or surveyor, but who is nevertheless an intelligent citizen and prosperous merchant, gives his version of the story of the Dublin Main Drainage. As Mr. Dennehy hits the mark with some effect in more places than one, we think his letter will not be out of place in these pages. We wish that Mr. Dennehy would always speak plainly, and when he has decided on acting an independent part on behalf of his fellow-citizens, that he would continue to do so, and not give way so often to the legal jargon of jobbers with five times the assurance, but not possessed of a twentieth part of the practical intelligence of himself. We say this much, not that we always subscribe to Mr. Dennehy's views on Corporate matters:—

SIR,—One would suppose from the language used recently in the Town Council, respecting the proposed representation of the Government on the Main Drainage Committee, that this committee was

in the same position with respect to the Council, and bore the same relations thereto as any of the other committees of that body. Permit me to say that this is not so. The Main Drainage Committee, under the act of 1871, may be more truly called a mixed board than a municipal committee. It is composed, under this act, of twelve members of the Dublin Corporation, and six representatives of the Rathmines, Pembroke, Clontarf, and Kilmainsham townships; and under the 7th section of the act mentioned, reports were not to be made to the council at shorter periods than six months; and by the agreement with the Port and Docks Board, embodied and made part and parcel of the act, the committee was placed, so far as the construction of the works was concerned, completely under the control of that board. The 11th section of this agreement was as follows:—

"Previous to commencing any works under the powers of the proposed act immediately affecting the works and property of the Port and Docks Board, or the river Liffey, or the harbour of Dublin, or the docks of the board, or the accesses thereto, the Corporation shall submit plans, sections, and specifications of such works to the board for their approval; and the said works shall be executed only in conformity with such approval; provided that if the board did not intimate their approval or disapproval within one month after such documents shall be submitted to them, the Corporation may proceed to execute the said work."

As all the new works were certain to affect some of the localities mentioned above in some way or other, it is perfectly plain and manifest that the Main Drainage Committee was placed by this section, so far as the works were concerned, completely under the control and direction of the Port and Docks Board. Now, it will be asked, who were the parties who allowed the rights and powers of the Corporation to be thus invaded, and who was it that permitted clauses to be introduced into the bill giving the townships power to appoint six members on the committee, the Corporation having only power to appoint twelve, the said townships not at the same time being bound to contribute one farthing to the rates until all the works were completed; and by whose act, for the first time in the history of our municipality, was the Corporation made subsidiary, subordinate, and placed completely under the control of the Port and Docks Board? The story is soon told. In July, 1870, a committee was appointed to take charge of all matters and things connected with the Main Drainage Scheme, and the bill then about to be promoted by the Corporation. Let it be clearly understood that the bill, as it was originally presented to the council, did not contain any of the objectionable clauses I have mentioned; but, afterwards, when the bill was before the committee of the House of Commons, the committee having charge of the measure brought off opposition by allowing these alterations in the bill, which so completely altered the character of the Main Drainage Committee in its relation to the Municipal Council. It appears to me, therefore, rather too late for the parties who were concerned in making the arrangements with the townships and the Port and Docks Board to be now complaining of any further or new representation on the Main Drainage Committee. The special committee having charge of the bill was appointed as I mentioned, in July, 1870, and it was whilst the bill was before the Parliamentary committee during the session of 1871 that the organic change in its character took place, and this was done beyond doubt or question to prevent opposition before the Parliamentary committee, and was also done without the consent or knowledge of the council. Now, I assert that nothing could have been more unfortunate than this fact, for had the bill been opposed before the committee there would have been a thorough investigation of the scheme both with respect to the engineering plans and the estimates of expenditure or cost of the works; but there not having been, for the reasons I have mentioned, anything like opposition before the committee, the plans of the Corporation or the promoters, and their calculations of cost or expenditure, were adopted by the committee as a matter of course.

We are now all aware of the fact that when the financial part of the scheme was practically tested by the estimates of the contractors it was found that the works could not be carried out for nearly three times the amount originally calculated upon by the promoters before the Parliamentary committee, but up to this we have had no similar means of knowing whether the engineering plans could ever be worked out or not.

I do not think the citizens of Dublin ought to permit either the original plans of these works, or the modifications of them that have since been prepared, to be even commenced without previously having a most careful, thorough, and scientific in-



vestigation as to their suitability to the object in view, or the possibility of their ever accomplishing what was intended—the main drainage of the city. It has always appeared to me to be a wild engineering scheme to propose to bring all the sewage from Kilmaham on the one side, and from Merlion on the other to Carlisle Bridge; and adding thereto all the drainage from the head of Rathgar, and sending the entire by means of a syphon under the Liffey, and down to the North Bull to be discharged. If the engineering skill of the present day cannot discover a better system of Main Drainage for Dublin than this, I can only say that, in my humble opinion, there is great room for improvement in main drainage engineering.

"Hear, hear!"

### DESIGN FOR NEW HALL, ROYAL COLLEGE OF SURGEONS.

OUR illustration with this number is a sketch design for a proposed addition to the Royal College of Surgeons, obtained from Mr. Thomas Drew, R.H.A., one of the competitors on whom, among others, we have waited to obtain information relative to complaints which have reached us as to the conduct of this competition. The information we have obtained from different sources we have commented on in another column. We understand that Mr. Thomas Turner and Mr. William Henry Lynn, R.H.A., as well as Mr. Drew, complain at having been induced to enter into competition solely by the consideration of the architect to the College being out of it, and in the position of a disinterested and impartial adviser within and without the walls of the College.

The leading feature of Mr. Drew's design was the formation of a central lobby, communicating with all the principal apartments of the College more conveniently than at present, and opening into a new galleried hall of imposing proportions, which would be allocated to both museum and library extension, and at the same time throw open the halls and apartments on each floor *en suite* for the circulation of visitors on special occasions such as *conversazioni*, &c.

### KILLOWEN PARISH CHURCH.

THE parish church of St. John, Killowen, diocese of Derry, having lately undergone very extensive alterations and improvements, was on Tuesday consecrated by the Lord Bishop of the diocese, the very Rev. Dr. Alexander.

The old edifice, which was flat and heavy in appearance, has been almost entirely rebuilt. The most has been made of the position, which is extremely picturesque, overhanging the west bank of the Bann. Richly tracied cut-stone windows, of Early Decorated type, supersede the old ones. The walls have been lowered, and a highly-pitched roof replaces the former one, while a graceful bell-cot, upwards of 70 ft. high to apex, towers above. The eastern end of the church has been enlarged and beautified by a new chancel and robing-room. There is also a side entrance porch added. There is a fine four-light window in the west gable, facing Killowen-street, while a boldly treated three-light window fills the gable of the chancel looking towards the river. All the windows are filled with cathedral quarry lights. The roofs are all open, that of the nave ceiled at hammer-beam, with stained and varnished timbers. The open benches, pulpit, and chancel fittings, including choir desks, &c., are all of pitch pine varnished. A handsome lectern and font, placed near the chancel, the gifts of Robert Kyle, Esq., and Rev. F. W. Hogan, have been added. The Rev. Canon Smyly has presented a handsome chair for the chancel, and the Rev. James Stewart, incumbent, provided a similar one, which make the chancel arrangements quite com-

plete. The chancel will be inlaid with encaustic tiles, and the porch and passages will also be tiled. The heating is by means of Porritt's underground stove, which works satisfactorily. The church is lighted by floriated and gilt wrought-iron standards in nave, and coronæ in chancel and porch.

The general works reflect great credit on the contractors, Messrs. McClelland and Co., Derry. The standards, coronæ, and gas-fittings were by Messrs. A. D. Williams and Co., and the varnishing and painting works by Messrs. J. and D. Baxter, Diamond, Coleraine. Mr. J. G. Ferguson, C.E., Derry, was the architect, and the works were carried out under his superintendence.

### CIVIC LYRICS.—No. XC.

#### PUBLIC BORES.

I'd like to know how many men  
Who grace our public boards  
Know how to write their names, and then  
Could swear they know the words!  
I know of some who'd talk for weeks,  
A month, a year, or more;  
The centre-bits within their cheeks  
Are always sure to bore!

I'd like to know who will be Chief—  
An Alderman elect,  
A Councillor who holds a brief,  
And stands five feet erect;  
A bulky man, a leanish one,  
A sandy wight or fair;—  
Speak out, and tell me, if you can,  
Who longs to be Lord Mayor!

Don't keep the public in suspense—  
The Drainage Scheme can wait!  
But there is not the least pretence  
To hide from us our fate.  
Out with the answer!—"Who is who?"  
Thanks, thanks—'tis he who swore  
That, though he falls to auger through  
To place, he's sure to bore!

CIVIL.

### IRISH ARCHEOLOGY AND THE IRISH BUILDER.

THE following note of recognition from a well-known and esteemed native archæologist and antiquary, the Rev. James Graves, to whom our countrymen owe much for his life-long services in elucidating the antiquities of Ireland, and helping to preserve her national monuments, cannot be better acknowledged on our part than by publicity. We have laboured long and hard in a journalistic way to aid the interests alluded to by our reverend correspondent, and there have been many who, though they could not or would not afford a word of recognition, did not scruple to avail themselves of materials amassed by our labours:—

Inisag Glebe, Stonyford,  
July 18, 1875.

DEAR SIR,—All archæologists must thank you for your continued exertions to forward architectural and antiquarian studies and interests in Ireland. Your last number of the IRISH BUILDER is particularly interesting to us here in Kilkenny from the very fine and faithful view of St. Canice's [Cathedral], and the interesting notice of source. Your notice of the Ancient Monuments question will do good also, and the leading article [Public Records in Ireland] is also excellent.—Yours faithfully,  
JAMES GRAVES.

### THE O'CONNELL CENTENARY AND THE PUBLIC SAFETY.

ON the eve of the Centenary Celebration we have nothing to say in these pages upon the political aspects of the forthcoming centenary, though we could have wished, from an art or architectural point of view, that the work of Mr. Foley was finished, and the monument permanently in its place. The O'Connell Committee has thought it necessary to claim the merit of a suggestion that did not emanate from their body, but through these pages; as, however, they are unable to vindicate their claim, the matter need not be discussed further at present.

Our object now, in speaking of the cele-

bration, is to advise the public authorities that there is the utmost need of every possible provision being made for the protection of human life and property on the 6th of August. If stands or platforms are put up through the city, their construction should be seen to by the Borough Engineer, or other responsible or appointed architects or surveyors. If windows, balconies, and roofs are utilised for spectators, there is great danger from overcrowding, and no structure should be allowed to be put up of insufficient strength, or without being properly tied, braced, and bolted. The bridges and quay walls are other points of danger, and it devolves on the Commissioners of Police and the Corporation, acting together, that time will now be taken by the forelock in providing for the public safety in view of the great concourse in the city on Friday, the 6th inst. To be forewarned is to be forearmed, so we trust that our suggestions will be accepted in the spirit with which they are tendered by those likely to be held responsible for any public disaster, if such should happen through any neglect of duty.

### SANITARY AND OTHER NOTES.

SINCE our last issue the following letter from Mr. Burke, Under Secretary, *in re* the Main Drainage, was read at a meeting of the Corporation:—

Dublin Castle, 14th July, 1875.

SIR,—In reference to your letter of the 12th instant, I am directed by the Lords Justices to inform you that their Excellencies understand the resolution of the Municipal Council of the 12th instant as expressing the assent of the Council to the proposition that the question of additional security for the repayment of any increased loan for Main Drainage purposes must necessarily be considered in any proposal for fresh private legislation on the subject. In reply to the desire of the Corporation to be informed of the nature and extent of the representation required by the Government upon the Main Drainage Committee, I am to state that their Excellencies believe the desire of the Lords Commissioners of her Majesty's Treasury to be that such representation should, as to its nature, be provided from existing Government officials, conversant with financial and engineering subjects; and as to its extent, be no more than in proportion to the extent to which the interests of the general tax-payers of the United Kingdom are involved in the scheme. On this point their Excellencies would remind the Corporation that the large contributions to be made out of public moneys in aid of the rates, and the fact that the Main Drainage works will virtually be carried out by public money, advanced upon very favourable terms, appear to be exceptional circumstances as compared with the mode in which similar works have been carried out in other places. Their Excellencies trust that they may be favoured with an early reply to this communication, as they are very desirous, should the Lord Commissioners of the Treasury be satisfied with the views of the Corporation upon the points which they have raised, that the public legislation proposed by the Lord Lieutenant, in my letter of the 24th May, should be carried into effect during the present Session of Parliament. T. H. BURKE.

After a long debate and the proposal of a resolution and its discussion, the following amendment was carried:—"That this Corporation hereby consent that two such officials, financial and engineering, of the Government, should attend on the Main Drainage Committee, as are present as inspectors of the Local Government Board at the meetings of the boards of the various sanitary authorities, under the provisions of the Public Health Act, 1874, and the Poor Law and Dispensary Acts in force in Ireland."

KINGSTOWN.—At a meeting of the commissioners, the reply of the Local Government Board to the memorial for a provisional order to carry out main drainage and other works, at an estimated cost of £44,000, and for such works to increase the rating powers of the commissioners to 5s. 6d. in the pound, and for other purposes, was considered. The Local Government Board enclosed a copy of the opinion of their advising counsel, Mr. Monahan, Q.C. Dealing with the parts of the petition from 1 to 19 *seriatim*, Mr. Monahan advises that in part 2 the Local Government Board could direct an inquiry under the Local Government and Public Health Acts only so far as relates to the proposed power to purchase land compulsorily for sewers, which the commissioners were, under existing acts,

C

authorised to construct. Parts 3 and 4 were altogether outside the jurisdiction of the Local Government Board, as was also part 5, except so far as related to increase of borrowing powers for laying down asphalt. Parts 6 to 14, inclusive, proposed alterations of existing public acts which the Local Government Board could not grant. Part 15 might be dealt with partially. The remainder of the petition referred to matters the Local Government Board were not empowered to deal with. On the whole, Mr. Monahan thought that so much of the petition lies outside of the power of the Local Government Board that unless materially altered, no inquiry upon it should be held. The Local Government Board, expressing its concurrence in this opinion, desired to be informed whether the commissioners proposed presenting such amended petition. Mr. McEvoy moved, and Mr. Doyle seconded, a resolution to the effect that no further steps be taken in the promotion of the petition. Mr. Reilly moved, and Mr. Kelly seconded, an amendment, that a special meeting to consider the matter be held. The amendment was carried by 10 to 2. A letter was read from the Port and Docks Board, enclosing a copy of the report of Mr. Stoney, the board's engineer, on the proposed sewage outlet at Sandycove, Mr. Stoney being of the opinion that the outlet was so near to Bullock Harbour as to render it probable that nuisance therein and filling up might result, the Port and Docks Board declining to sanction the plan.

**KILKENNY—STATE OF THE COURT-HOUSE.**—At the Kilkenny Assizes, the summer sitting of which came to an end a few days since. Mr. Ryan, Q.C., begged leave to bring under Baron Dowse's attention a matter of some importance. It was the state of accommodation afforded in the Court-House for the Bar, and, he might add, the Judges too. The accommodation was not such as might be expected from a county and city such as Kilkenny; and he hoped that the attention of the county surveyor might be directed to the making of some improvement, which would not involve any great expense. Through the Bar-room there was a public passage between the two courts, through which a constant stream of people was passing, to the great inconvenience of the Bar, and the entrance way was continually crowded with people waiting to receive their expenses as witnesses from the Crown Solicitor. He thought something might be done to provide a more suitable apartment for the Bar. He need scarcely point out to his lordship how deficient was the accommodation for the Judges when they retired from the Bench. If to effect an improvement would involve a great expenditure of money, he would be hopeless of having it carried out; but he had no doubt the county surveyor could make such arrangements as would supply a remedy at a very trifling outlay. His Lordship said it did not require to have his attention called to the matter, for him to have observed that the condition and arrangements of this court-house were as bad as bad could be. The judge sitting, as he did, in the Record Court, had no chamber at all, and was obliged to seek share of the accommodation, such as it was, provided for the judge presiding in the Crown Court. To gain that apartment he had to pass through the Bar-room and through passages crowded with people. He did not object to passing through the Bar-room, but it must be very inconvenient to the Bar to have people passing through. However, the passage beyond it to the Judges' room was most sickening, and in the Judges' room yesterday he found a miasma and a collection of foul smells that was really dreadful. He had to seek the open air to recover from the effect produced upon him by the condition of things there. He sent this morning for the county surveyor, who informed him that the cause of the state of the atmosphere in the Judges' chamber the day before, had been that the public had had access to it, and the closet connected with it, during the day. He professed that it was the most disgusting and abominable court-house he was ever in. He would take care that what he felt on the subject should be known elsewhere.

The sub-sanitary officer of Kilkenny reports that "Mary Hughes, of Maudlin-street, is in want of a chimney to her house, to take away the smoke"!!

**NAAS.**—Speaking of the sewerage scheme for Naas, proposed by Mr. Brett, the County Surveyor for Kildare, the local *Express* says:—We confess we did not dream such an enormous expenditure would be necessary to improve the sewerage of the town; and even still we hope it may be found possible to abate all the nuisances complained of by some alterations in the existing sewers. Nothing short of a very pressing necessity would justify so large an outlay as would be required to carry out Mr. Brett's plan. Is there in this case any such constraint? We are assured, on what ought to be good authority, that the town is at present in a healthy condition, and has enjoyed an immunity from any

serious outbreak of epidemic disease since the cholera of 1832. It is true, nevertheless, that the health of the inhabitants of the town would, in all probability, be still better if the sewerage were improved.

**THE SMALL-POX HOSPITAL AT ATHENRY.**—The *Sanitary Record* of yesterday says—"We have received a long letter from Mr. Robert Irving of Athenry, giving an account of the difficulties with which he had to contend in the erection of the small-pox hospital at Athenry, which has been the means of checking the spread of the epidemic and isolating the patients. It appears that Mr. Irving was induced to undertake the erection of the hospital after two builders had failed to carry out the work, one having declined and the other having been unable to get labourers, who refused to go near the place. Mr. Irving was then induced to undertake the contract, and at first had to work himself alone for several days, his men having declined. His example, and the promise of high pay, however, stimulated a few labourers to assist him, and in time all difficulties were surmounted, and the hospital opened for the reception. Mr. Irving complains that the guardians have now referred his account to arbitration instead of settling the amount at once. We cannot, of course, enter into the merits or demerits of this dispute. It appears to us, however, that the important nature of the work accomplished by the contractor at a time of panic, and in the face of some difficulties, and at some personal danger, merits a prompt and liberal recompense."

Nine dealers in milk, and four in mustard, were mulcted in fines this week. In one case the milk had 70 per cent. of water; fine £9, costs £4.

It is announced that the authorities of Strabane are about to adopt Fottrell's Patent Bituminous Tubing for their new water supply.

#### THE ROYAL COLLEGE OF SURGEONS' COMPETITION.

HAVING learnt that the conclusion of this competition had been (after some months' delay) officially intimated by the return of drawings to competitors, we have made it our business to make some enquiries as to the conduct of it, and the circumstances which, we were aware, had excited strong feeling of dissatisfaction among members of the profession. The statement made in reply to our application, by our informant, a competitor, is, that he, in common with at least two other gentlemen, were induced to enter into the competition virtually on false pretences; that from whatever cause arising—from negligence, or want of candour deliberate or otherwise, on the part of the College or its officials—the College must remain answerable to them for a breach of good faith; and, in addition to this, for having taken all advantage of their professional advice and valuable time in preparing designs, dismissed them with indifference, and tardily returned their drawings without either intimation of their decision or common courtesy of acknowledgment.

Our informant states that, having applied to the Registrar for some information about the competition, he received no written reply, but was waited on courteously and obligingly by the architect to the College, who stated that he did so at the Registrar's request and to save him trouble, and that he was most willing to afford all possible information; this more especially (and this appears to us the crucial point of this unfortunate misunderstanding), as he, the architect to the College, had no interest whatever in the competition—his plans having been definitely set aside—further than that he should carry into execution whatever design might be selected. Having thus, as he believed, been satisfied that the architect to the College was not a competitor, the information thus gained was communicated by him to two other gentlemen, who, receiving it in good faith, agreed that under these circumstances (but under no others) they would also be competitors. It must be believed that the information thus afforded by Mr. Symes was *bonâ fide*, but his appearance on the scene afterwards as an admitted competitor, and a successful one, must nevertheless be regarded as a grave

breach of candour and good faith towards other architects that competed.

No one who knows the members of the Council of the College of Surgeons would for an instant question their individual character for fair and honourable dealing; but we put it to these gentlemen, how can they reconcile it with their official self-respect that the College should be open to the imputation of having taken advantage of all the valuable information which even comparison of rival prescriptions affords, and of the valuable time expended in interviewing gentlemen who deliberately state that they were deluded under misrepresentation of an essentially important fact into throwing away their time and money? The College may also ask itself if it is quite consistent with a character for official courtesy, that the only intimation of the result of the competition or acknowledgment of labour and devotion of valuable time should be the delivery of drawings to a competitor, as we are informed was the case, after a delay of many months?

We must hold that a body like the College of Surgeons should hold itself in its official actions far above suspicion. Putting every other cause of complaint aside, care should have been taken that by this careless and uncourteous detaining of the drawings for months it was not to be held open to the innuendo of obtaining *gratuitously* all the information which the designs of some of the most eminent architects could afford, or to the possibility of its being insinuated that the £100 prize has virtually been but a bait to decoy, like the traditional bunch of carrots before—we mean no covert disrespect to eminent architects—the donkey's nose; and that, further, having served its purpose, the bait, this £100, may somehow or other "merge in the architect's commission," to use a well-known formula. The Council of the College have, no doubt, not properly estimated the outside view to which a probably perfectly straight transaction may be open. Giving it credit for intending to act in good faith, if there has not been actual want of candour and straightforwardness, there has evidently been an amount of carelessness, indifference to value of time of competitors, and want of consideration and courtesy quite sufficient to warrant the strong feeling of dissatisfaction and indignation which correspondents evince.

#### TECHNICAL EDUCATION.\*

WHAT the Government are now asked to do, and what they appear desirous to do, is to give the working men of Ireland the same facilities which English working men enjoy for acquiring technical proficiency in industrial work, when that work is such as to need skill, scientific knowledge, and artistic taste in those who are engaged upon it; that is to say, by means of museums and art schools to enable the Irish working man to see the finished products of the masters in his craft, and to receive such instruction as will give him the power, if he have the will, to emulate or even excel them. It will not, however, be of much use to teach Irish workmen how to work if we do not give them the work to do. The industrial resources of Ireland cannot compare with those of Great Britain, yet they are not so insignificant as is commonly supposed, and what there are, are yet undeveloped. Even the stores of minerals in which she is so rich are left unexplored. As it is, upwards of 50,000 tons of iron ore are annually exported from the North of Ireland to Glasgow, and the supply might easily be doubled. Her coal fields, though of considerable extent, are, it is true, of little average depth; but she abounds in anthracite, and has any quantity of firebrick and porcelain clay. It is idle to say that if Ireland were naturally a trading country various branches of manufacturing industry would ere this have sprung up there. A manufactory does not grow of its own accord. Some enterprising man makes a beginning,

\* From the *Pick*.

and others follow; and were encouragement held out to men of substance to start trading establishments in Ireland there is little doubt that in a few years' time a complete change would be wrought over the whole face of the country. No manufactures, however, can be expected to flourish in a land where life and property are not respected. Give security to these, and English capital will flow over to the sister isle, and effect an improvement in the habits and mode of life of the Irish people which no act of the legislature could ever accomplish, and no grant of money in aid of scientific education alone bring about.

[There is ample security for life and property in Ireland at present; and English capitalists, if they are inclined, can establish and carry on trade without the least molestation. In one or two districts there is a lawless spirit.]

### TO CORRESPONDENTS.

**ERRATA.**—Page 201, col. 2, line 8, for *brick* read *back*; col. 3, line 10, from bottom of article, for *mortality* read *morality*.  
**PAROCHIAL RECORDS.**—Our correspondent "Inquirer" would do a service entitled to more than ordinary thanks if he would inform the public where the "missing records" spoken of are deposited. The Roman Catholic church has custody of some interesting records; some are abroad in colleges, more have been lately returned to this country, and some not accessible to "outsiders" have been always here.  
**AN ARTIZAN OF THE "OLD SCHOOL."**—Your recollections would doubtless be interesting. The habits, pastimes, and characteristics of your trade and other city trades, from fifty to sixty years ago, would be worth knowing, with the impressions of one who belonged to "the old school."  
**ARCHITECT'S ASSISTANT.**—If you cannot under present circumstances assist your master, you had better take means to assist yourself by changing to some office where there is business to enable you to learn your future profession.  
**CLERK OF WORKS (London).**—The office here is generally filled by men of the same class as in England. The carpenter in the majority of instances; but there are bricklayers here and there of undoubted ability, who fill the appointment.  
**H. B.**—Send on the drawing and the particulars.  
**C. E.**—The letter is little more than an advertisement of the wares of Messrs. Blank and Co.  
**VIGILANS.**—No case of typhoid fever has been reported from Mountjoy-square. The sewerage is being looked after, we understand.  
**ALPHA.**—The police authorities seem to be quite powerless in the matters you write about. You should consult an attorney. See 27 and 28 Vict., c. 305.  
**J. T. S.**—We shall let you know the result in a few days.  
**RECEIVED.**—T. C. D.—A Citizen—Dr. M.—G. R.—H. H. and Co. (London)—A Farmer (Lismore)—A Member of the Old Corporation, &c.

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### ILLUSTRATION:

#### DESIGN FOR NEW HALL, ROYAL COLLEGE OF SURGEONS.

**THE BOARD OF WORKS AND THE CENTENARY.**—The Board of Works have granted the request of the Centenary Committee for the use of a portion of the Phoenix Park for a display of fireworks on the 7th inst., confidently trusting that no damage will be done.

**EARLY STONE MONUMENTS.**—A number of stone monuments and other early works of archaeological interest have been presented by Sir Noel Paton to the Crown. The collection was made by the father of Sir Noel, a well-known Oriental traveller and author. It has been placed for the present under the charge of Mr. Wilson, keeper of Dumferline Abbey.

**OLD SCOTTISH ACTS OF PARLIAMENT.**—The Lord Clerk Register of Scotland will shortly publish the Index to the Acts of the Parliaments of Scotland, which has been in course of preparation for some years and is now approaching completion. There will also be published at the same time three new volumes of these acts, embracing the period of Charles I. and the Protectorate. The new volumes have been printed from the original records of Parliament, which, when this, the only complete edition of the Scottish acts, was first issued, were supposed to have been lost, but were subsequently discovered in the state paper office in London, whither they had been conveyed by Cromwell.—*Athenaeum*.

### TO LONDON ADVERTISERS.

*London Advertisements for the IRISH BUILDER, or other Orders connected with the Architectural, Building, and cognate interests represented by this Journal—the only professional organ of its kind in Ireland,—will be received by the "Agent of the IRISH BUILDER," at 200 Old-street, London, E.C., or directed to the Head Office, Dublin, as usual.*

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*It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.*

*We shall be glad to receive from any of our readers notes of works in contemplation or in progress.*

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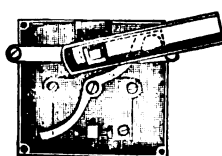
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## O'CONNELL CENTENARY.

### THE CENTENARY PROCESSION.

FRIDAY, 6TH AUGUST, 1875.

The general order of the PROCESSION BODIES will be as follows:—

- 1st—THE QUAY MEN.
- 2nd—THE TRADES OF DUBLIN.
- 3rd—THE PROVINCIAL TRADES.
- 4th—DEPUTATIONS FROM ENGLAND and SCOTLAND.
- 5th—RELIGIOUS CONFRATERNITIES, SODALITIES, AND KINDRED SOCIETIES.
- 6th—PROVIDENT, FRIENDLY, AND SOCIAL ORGANISATIONS.
- 7th—COLLEGES AND SCHOOLS.
- 8th—POLITICAL ASSOCIATIONS.
- 9th—TOWN COMMISSIONERS AND BOROUGH AND CITY CORPORATIONS.
- 10th—MEMBERS OF PARLIAMENT, NOBILITY, AND GENTRY.
- 11th—THE CLERGY.
- 12th—THE O'CONNELL FAMILY.
- Lastly—THE LORD MAYOR.

N.B.—The several Bodies included under the above heads are expected to settle, immediately, among themselves, the order in which their respective component parts will be arranged in the Procession. The internal arrangement and discipline of each Body is, exclusively, its own affair, while the general direction and ordering of the Procession is the duty of the National Committee.

Signed, by order of the Ceremonial Committee,  
P. J. SMYTH, M.P., Chairman,  
JAMES W. KAVANAGH, Hon. Sec.  
Mansion House, 30th July, 1875.

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JAMES W. KAVANAGH, Hon. Sec.  
JOHN KEEGAN, Sec.  
Mansion House, 17th July, 1875.

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JOHN KEEGAN, Sec.  
Mansion House, Dublin, July 30th, 1875.



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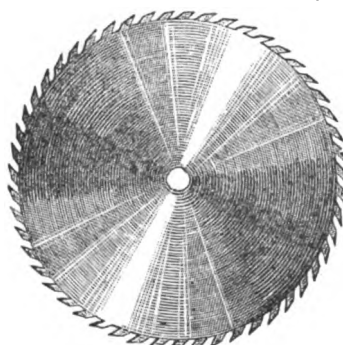
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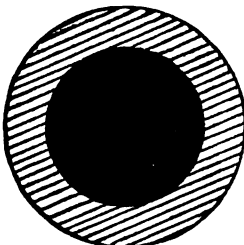
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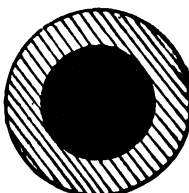


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VOL. XVII.—No. 376.

## The Dead Sculptor and the Unfinished Monument.



**A**CENTENARY celebration has taken place, but the object which would have given tone and reality to the commemoration was absent. The *raison d'être* was the unveiling

of the O'Connell statue on the centenary of his birth, and thus substantially honouring two great Irishmen—the political chief, and the artist whose genius and chisel had reflected credit on his subject, his country, and his art.

A testimonial committee had, nominally at least, been in existence for several years; but, being part and parcel of a municipal body proverbially slow and neglectful of every public work they undertake, instead of actively moving they hibernated season after season, with results that are too painfully apparent now. Four years ago it was pointed out by a writer in these pages that, in view of the completion of the late Mr. Foley's work, it would be a graceful act to unveil the monument by a suitable ceremonial on the centenary of O'Connell's birth. We looked upon O'Connell as a historical personage—a man, whatever might be his faults and failings—as one who had written his name upon the mind of his age; and, considering that more than a quarter of a century would have elapsed by this year since his death, and that most of, if not all, the party hatreds of his time were being stilled, a fitting opportunity was arriving for all classes, irrespective of creeds, for doing him honour. Perhaps we anticipated too much, or calculated too far upon the good feelings of our countrymen as a whole. It is evident now that, nearly from the moment when the centenary wing was grafted on the original committee, the notion was entertained by some parties, whether the monument was finished or not, a good opportunity was arriving for a politico-religious or rather for a purely sectarian demonstration, and that the occasion should be availed of. As this is a purely professional and literary journal, we cannot be tempted to enter into political details, although we could easily dissect the *modus operandi* by which a well-conceived centenary celebration in the first instance, was afterwards thwarted and twisted to serve the purposes we have indicated. On the shoulders of the original O'Connell committee, including some members of the Corporation and officers of religious institutions the blame must rest, that the centenary celebration lacked the reality from the absence of the monument.

Year after year has been frittered away, when a little active organisation and interest would have secured the completion of the work entrusted to their care. Possibly, if Mr. Foley had not died last year, the monument would now be in Sackville-street; but even since our lamented sculptor's death, there was sufficient time to complete the work. We do not only assert this, but we can prove it, if necessary. A more reprehensible breach of public trust has

seldom before taken place than that which can be charged to the testimonial committee. Some of the original members are now in their graves, and of them we will not speak; but among the present members are men to whom of late the completion of the monument was but a secondary consideration.

Now that the shorn celebration has passed over, most likely the committee, if not watched, having lost their spur to exertion, will begin to hibernate once more. There is, to be sure, the probability, or rather we should say the moral certainty, of another celebration—a supplemental one—when the monument in reality is unveiled; and we, in view of this, would conjure the public to be on their guard and see that this second occasion is not availed of for any mere politico-religious or sectarian display. The harm done on the 6th of August can be partly wiped away by a national and dignified art ceremonial whenever the monument is ready to be unveiled, and both O'Connell and Foley can be fittingly honoured upon that occasion,—not as mere men of particular creeds or parties, but as historical Irishmen.

Viewed *per se* as a demonstration, apart from antagonistic influences, the demonstration of the 6th of August was a notable one, and whatever success belongs to it, the materials were the contributions of the working men. Without the trades and other kindred bodies the processional display would have been a meagre one. The fact, however, remains that by the development of gross party bias, added to systematic mismanagement on the part of the committee for years, the first and greatest opportunity was lost, and a naked site in Sackville-street still tells how fittingly the monument committee have consumed their labour of ten or more years. The centenary is over; but the stranger or visitor to Dublin will be at a loss to understand its import when he looks for the statue and is told that it was never present and that it is still absent.

The services of a great native artist was enlisted to perpetuate the name, and fame, and form of O'Connell in a work of art, but a junta of time-servers and mischief-makers, forgetful of their trust, diverted the purpose of their formation, and, instead of an object of art, we were in part presented with a manifestation of artifice. Let the deluded pray for these men, for possibly they were thinking in accordance with the maxim—*Ars est celare artem*,—for which may their own gods forgive them.

## PUBLIC WORKS IN IRELAND.\*

(Continued from page 211.)

THE works under the Landed Property Improvement Act being carried out in the North-Eastern District, comprising the counties of Londonderry, Antrim, Tyrone, and Armagh, are reported upon by Mr. Thomas S. Irwin, C.E. Most of the loans obtained in the district are for building purposes, such as farm buildings and labourers' dwellings; but there are also some drainage works carried out. The engineer tells us that Viscount Templeton is carrying out his large loan in the County Antrim, which is purely for drainage purposes, in a steady and systematic manner. In the case of the Earl

of Charlemont, a very large tract of low lands in the Roxborough Demesne has, we are told, been thorough drained, which lay utterly useless to the extent of 148 acres. At present the Blackwater River is reduced to such a level as to admit of a good arterial cut, with the minor works running in. With the use of a large self-acting flood-gate on the Blackwater River, and embankments made throughout, the most excellent and lasting drainage scheme has been completed, in the opinion of the engineer, greatly to the satisfaction of Lord Charlemont. All the works in this district are reported to be giving satisfaction to the proprietors, and more drainage loans are anticipated this year.

The counties of Carlow, Kildare, Kilkenny, King's and Queen's counties, Wexford, and Wicklow are reported upon by Mr. J. Fishbourne. The inspections consisted of works of drainage, fencing, labourers' dwellings, and farm buildings. The inspector finds a growing anxiety on the part of the farmers to improve their dwellings and farm buildings; the great increase in the rate of tradesmen's wages and materials, however, is stated to have impeded these improvements considerably. Slated roofs are now generally adopted, few of the houses being thatched. It appears also that good labourers require improved dwellings, and will not occupy bad, thatched, small houses, so it is confidently anticipated that many loans will be applied for in order to build such. We hope so, indeed; and nothing would give us more pleasure than to see a determined "strike" *en masse* made by the Irish agricultural labourers against their present hovels, and in favour of comfortable dwellings, where health, decency, and morality are possible. With good homes would arise in a short time a more contented and useful class of labourers. Housing men like animals or worse than animals is not the way to obtain good husbandmen whose labour will be remunerative. Far better would it be if the agricultural labourer's wages were double, for men well housed, well fed, and well clad will work, and will reflect credit upon themselves and their employers.

The counties Westmeath, Longford, Roscommon, and Mayo are reported upon by Mr. William Bond. The inspector's report is not a very cheerful one. The owners of property are stated as not inclined to carry out extensive improvements, on account of the great increase of the price of labour, and the difficulty of obtaining labourers. Neither are they disposed to make improvements for their tenants, except on large holdings, where the annual repayment of the rent-charges is guaranteed. In some districts of Roscommon it appears that all the able-bodied labourers not regularly employed on farm works go to England in spring and return in autumn, but decline to work at home during the winter. Whose fault is it? They get good or fair wages for their labour in the sister kingdom, and are not offered one-half the sum at home. Having made the hay while the sun shone, like the bees, they rest at home, we suppose, in the winter; and, though living on their gains, they are not tempted to work from twelve to sixteen or eighteen hours for eight to ten shillings per week. If a labourer in some districts of Ireland asks ten or twelve shillings a-week for his labour from sunrise till sunset, even in the summer or autumn months, he is told he is not wanted, and the cry is raised by the

\* Forty-Third Annual Report from the Commissioners of Public Works in Ireland. Dublin: Printed by Alexander Thom.

gentlemen and tenant farmers that labour is scarce and dear. Mr. Bond, however, states in his report that much more advantage has of late been taken of the Land Improvement Act for agricultural buildings and farmers' and labourers' dwellings, particularly in Westmeath and Longford; and in several cases in which the tenants have not had sufficient interest in their holdings to obtain on their own account, they have done so through their landlords. There is a tendency in this district to provide a good class of slated dwellings for the labourers, and several farmers are reported to be doing away with thatched houses as quickly as possible.

The County of Tipperary and part of Clare are reported upon by Mr. James Jocelyn Poe. The excess of loans in this district has been for farm buildings; only four cases occurred of loans for labourers' cottages. The applications for loans for farm buildings are in many instances made by the owners for the tenants, while the drainage works are now left to the tenants to execute at their own expense. Labourers appear to be scarce in this district, and artisan and skilled labour advanced in value. Both in Tipperary and Galway extensive drainage works are reported, the most extensive being on the estate of Dean Butson, near Clonfert, and Mr. Roe, near Templemore. Of farm buildings, the most extensive were in the County Clare, for Captain O'Callaghan, for Mr. John O'Meara, and for the Earl of Normanton, in Tipperary, and for the late Colonel Westenra, in the King's County. The applications for loans for labourers' dwellings were confined to four, all in the County Tipperary. The cottages erected for Captain Massy Dawson and for the Vicomte Chabôt were well designed, appear to be comfortable, and were the best executed in the district for the past year. Those completed for Colonel Westenra are also spoken of favourably.

Here, again, we have to complain of the meagre description of buildings or "improvements" given in these reports. We fear that a great number of these "well-designed" and "well-arranged" cottages are the reverse of being comfortable. Why do not some of the inspectors give us the cost of construction, and some account of the materials used? Even without a plan, they surely could tell us the general arrangement, the size of the rooms, the number, what out-houses, and what provision has been made in the matter of drainage and other human and sanitary requirements. We do hope the engineers and inspectors of the Board will in future afford the public better information on the subject of farm and labourers' dwellings. It is positively tiresome to be reading of "neat cottages" and other equally neat performances, and not being afforded an iota of evidence to show what they are really like, whether "improvements," or the reverse.

The County Dublin and parts of Kildare, Meath, and Wicklow, &c., are reported upon by Mr. Richard I. J. Irwin at considerable length. There is the same complaint in these districts, it appears, on the part of the proprietors, as to the high rate of wages demanded by skilled labourers. There were eight memorials for loans to drain and fence lands, three each belonging to Dublin and Kildare, and the other two to Meath and Wicklow. Other works of a like nature reported as in progress in last year's report, are now completed, including Lord Howth's road at Clontarf, and Mr. Frizelle's planting

near Annamoe; also the buildings which were being erected by the late Lord Athlumney at Clondalee and Realtogue, and some others. Inspections under loans were made by Mr. Irwin in the County Dublin—to the Hon. St. John Butler for a farm house at Walshestown; to the Hon. H. L. B. Bowley for a steward's house and offices at Marley Grange; to H. St. Leger B. Palliser for farm houses at Castlewarden; and to Mr. John Addy, at Rush, for some farm offices. Similar inspections took place in County Kildare in the case of farm buildings and labourers' cottages. In the County Meath some labourers' cottages built in Navan, under a loan to Thomas Fitzherbert, and in the County Wicklow like cottages built for Lord Carysfort on his Arklow estate, were inspected, as also ones for Lord Monck at Coolakay. The Inspector re-asserts his belief in the satisfactory working of the Acts, and states in every instance he found the works "well and carefully carried out in strict accordance with the plans and specifications duly approved of by the Board." The inspector, however, furnishes us no evidence whereby we can know the character of the dwellings, externally or internally, or the materials of their construction.

The County Galway and parts of Mayo and Clare are reported on by Mr. Edward Townsend. Since his last report he has certified for works to the amount of £7,485 odd, embracing farm buildings, farm offices, open, main, and thorough drainage, fencing, road making, and planting. Amongst farm dwellings is mentioned "a good substantial house," erected by Mr. Deely at Killaghbeg, and another of the same type by Mr. Conolly at Barnaville, in the County Galway. "A fine range" of farm offices is stated to have been constructed by Mr. Mahon on his property at Corbally, in the County Clare, at the cost of £1,000. Mr. Richard, of Tiaquin, has constructed "an excellent farm house" for one of his tenants, and "some nice cottages" have been built by Sir John Bradstreet in the County Galway, and by Sir Robert Blosse at Athavallie, in the County Mayo. The cost of labour is reported to have diminished in this district. In the western districts large tracts of land still remain almost useless that could be reclaimed, and the inspector states there is also a great want of proper dwellings both for tenants and labourers. We thoroughly subscribe to the following sentence from the conclusion of the inspector's report:—"It is vain to expect any social, sanitary, or material improvement in the condition of the Irish peasantry as long as they inhabit *en masse* such wretched abodes." We regret to say we have some improving landlords or their agents erecting labourers' cottages at present scarcely more sanitary than the mud hovels. Because they are built with brick or rubble they are called "nice;" and for the reason that there is a total absence of ordinary drainage and places of accommodation, they are stated to be suited to the habits of the people.

The Counties Limerick and portions of Tipperary and Cork are briefly reported upon by Mr. William Sidney Cox, M. Inst. C.E.I. An expenditure of £10,901 odd was certified for, of which sum £5,375 odd was laid out upon land improvement works and £5,525 odd upon buildings, being an increase of £2,469 odd in the former department, and £1,952 odd in the latter beyond the outlay

of previous year. Mr. Cox has not detected any increase in the value of labourers' hire in his district, which he attributes to decreased emigration. The same remark, however, does not apply to the artisans of the building trade, who are each year becoming more difficult to procure. The works are generally stated, in the district inspected, to be satisfactorily carried out.

The Counties of Kerry and Cork are reported upon by Mr. Henry Stokes. The progress inspections comprise works on which instalments have been accounted to the amount of £12,575 odd, the largest yearly amount expended in one year under the inspector's notice. The buildings represent a sum of £7,236 odd, and £5,338 for land improvements, being an increase of £2,906 odd on the year ending February, 1874. Eight of the loans were for the County Cork. There are very few new applications for loans for land improvement, but in the building line it is anticipated there will be more work done. It appears that nearly one-fourth of the Kerry land works paid for was in one account with Lord Kenmare for planting for covers in his demense at Killarney, which it is believed by the inspector will not be a financial success. The Land Act is said to have engendered a new jealousy between the landlord and the tenant; and Mr. Stokes thinks that it will be a long time a barrier to the improvement of the land under the acts, as loans for it will be entirely confined to farms in proprietors' occupation. He says:—"The tenants will very much prefer having their own claims for the improvement of the soil by their own labour; they consent to pay a rent-charge for the loan of it. But for buildings, they must get money for material and labour they cannot supply, and they will gladly pay for good dwellings and farm buildings, if they are not put up on too large a scale or in too expensive a style. The landlords will not borrow for them unless they pay the rent-charge in full, or unless the lands are let to top value, so that it is very probable the drainage of the wet land will not increase, but diminish." The inspector reports that Mr. E. M. Bernard's application for draining a flooded marsh on the River Brick, by pumping over the banks, has failed, as the special act for draining by pumps does not give authority to buy pumps and the requisite motive power. The inspector thinks that such works would be carried on to a considerable extent if the law was amended, so as to allow machinery to be included in the estimate for loans. He believes also that a general application of the centrifugal pump on the lowlands of the Upper Shannon and Suck is the plain solution of the difficult puzzle of how to preserve the inland navigation without its continuing to flood the marshes by the artificial raising of the level of the rivers.

The County of Cork is reported upon by Mr. J. J. Cornwall. The number of inspections of building cases was 22 (about the same as last year), and the amounts of loans, with few exceptions, were small. In the matter of land improvement cases, there is a diminution; the inspector attributes it to the great difficulty of getting labour, even at a higher rate of wages. He states it is nearly impossible to get a sufficient number of hands to execute work of any considerable extent. The number of labourers emigrating from this district is very much on the decrease. The works of all kinds under



notice of the inspector are stated to have been executed in a most satisfactory manner.

This ends the inspectors' Annual Reports 1874-5 under the Landed Property Improvement Acts. All, or nearly all, the engineers and inspectors speak favourably of the works executed under their charge, and it is to be hoped that their statements are accurate. Notwithstanding, it is quite possible, covering such a large area as these works do—in fact, the whole island,—that there must be some instances of inferior work.

We would like to see the grants larger in all instances, particularly in the matter of farm and labourers' dwellings; and we trust that in the next annual report some of the inspectors (at least those with an architectural and engineering turn of mind) will favour us with a little more practical information in relation to agricultural dwellings, their plan, arrangement, materials, and cost of construction. The reports we have noticed do not enable us to say whether the buildings mentioned are really improvements, for the particulars we need are absent, and could only be obtained by a personal inspection on our part.

#### A SANITARY SESSION WITH A FITTING SEQUENCE.

OBITER DICTUM.

OUR parliamentary senators have finished their labours for the session, but the work of the professional journalist knows no rest. He and his brethren must still toil on, not only as critics but as creators, supplying material for future use, their only reward being the consciousness of doing good, for honest recognition for even life-long services comes seldom. The intentions of the Conservative Government, as mapped in the Queen's speech in the opening of the session, was to make Public Health a Cabinet question; and, to give the Premier his due, he and his ministerial associates have pretty fairly succeeded in carrying out their sanitary programme. The Press, of all shades of opinion, have assisted the Government in their efforts at sanitary legislation, but the professional journals of the country have given a marked and unceasing attention and support to all the Government measures bearing upon the social and sanitary well-being of the people. No doubt Mr. Disraeli has appreciated the support that his Government has received apart from mere party questions, for the subject of Public Health is a matter that comes home to every man in the kingdom, irrespective of creed or class. The session being ended now, what will be its sequence? Reward, 'tis said, sweetens labour; and the public will be anxiously looking out to see how and in what persons will faithful service be rewarded. Will the recipients of honours usually granted at the end of a successful parliamentary session be men distinguished by political activity alone, or will they embrace names outside the senate as well—names already conspicuous in the annals of Sanitary Reform? Public expectation indicates a Government manifestation in the latter direction as well as in the former, and we hope the expectation will be realised.

We believe that, in expressing our opinions, we are expressing those of the majority of our constituency, that no act of the present Government would give greater pleasure than a marked recognition of one or more names among the sanitary reformers of Great Britain who, as pioneers and workers, have devoted their lives to questions bearing upon the public health and the improvement of the dwellings of the people. The labours of these men have now borne fruit; for, by their continued exertions, what was once the subject of a mere speculative or philosophical essay, has been made a topic,

and moulded into a science, and is now embodied in the laws of the country.

All honour, then, to those to whom honour is due; and it matters not to us whether they hail from the banks of the Thames or the banks of the Clyde—we shall feel honoured in seeing our professional and sanitary co-labourers honoured.

#### THE PRESERVATION OF NATIONAL MONUMENTS.

In the last published report of the Commissioners of Public Works in Ireland (noticed elsewhere), under the head of Miscellaneous Services, we find—Received from the Church Temporalities Commissioners, for preservation and maintenance of several buildings, the sum of £15,454; dividends on stock, £219 3s., or a total of £15,673 3s.; and under the head of Expenditure—Rock of Cashel, repairs and maintenance, £1,192 18s. 11d.; Devenish Round Tower and church, ditto, 7s.; Ardferth Cathedral and two churches, ditto, £86 5s.; the remainder, £12,954, in hand, is invested in 8 per cent. consols. We trust that our monuments mentioned in the act, and others also, will not only be duly preserved by being looked after, but that those which may be and are suffering from the effects of time and the elements, will receive attention. An empty house locked up and enclosed will soon go into ruin, sometimes sooner than an inhabited one; and there are many causes beside Vandal spoliation that contribute to the dilapidation and decay of our national monuments.

#### SCIENCE AND ART IN IRELAND.

If our Irish members of Parliament, irrespective of sect or party, would interest themselves half as much, or much less, in the matter of science, of art, and general education as they do in mere politics, our public art and educational institutions in Dublin and elsewhere throughout the provinces would be in a more flourishing condition, and the material prosperity of the country increased.

By the last report of the Science and Art Department there is an indication of the intention of the Government to establish a distinct department in this city. We hope the intention will be realised, for the increased cost will not be money thrown away if the institution is well organised and managed. The means already provided have been availed of to a greater extent in England than in this country; but the sister kingdom has exceptional advantages, and grants are more easily obtained for institutions there than with us. In England, it appears, there are 1,080 schools of elementary scientific institutions; in Ireland 189; and in Scotland 109. We are ahead, it will be seen, of Scotland, though it was generally supposed that the number of our schools was less.

The report shews that the College of Science in St. Stephen's-green is gradually increasing the number of its students in advanced science. There is a decrease in the number of visitors to the Natural History Museum of the Royal Dublin Society, though the collection has improved. The number of readers in the Library is slightly diminished, but there was still the respectable number of 24,814 attending last year. We are glad to see that the work performed by the Royal Dublin Society has been accorded honourable mention. In the several departments of the society during last year, there was an attendance of 387,298, showing an increase over the previous year of 6,159. There is a great decrease in the number of visitors to the Zoological Gardens, possibly owing in part to the small increase made in the charges of admission; but, as against this, there has been an increase of £296 in the entrance fees and subscriptions. The well-to-do classes, it would appear, take more

interest than formerly in the society, but however pleasing this may be, still we would like to see every facility given to the working classes to visit the gardens, because such places, when rightly viewed, are educational as well as recreative. The financial condition of the Royal Hibernian Academy is slightly improved, but the amount, in all conscience, though greater than in previous years, is miserably small. How comes it that the receipts from the annual exhibition and other sources only amount to the sum of £451 6s. 11d.? We cannot understand it, though possibly we could explain, paradoxical as our remark may be. In respect to the Botanic Gardens there seems to be a difficulty of obtaining a sufficient supply of water. How is this? Is the Finglas river—the immemorial and classic Tolka—drying up? Could not a supply be taken from the Royal Canal not far distant? or again, could not an artesian well be sunk? The valley of the Tolka would afford any amount of water if the soil was tapped in the proper locality.

Pendant to the above, a meeting of the managers of the Royal Cork Institution was held in the library of the institution on Wednesday, the Right Hon. the Earl of Bandon, president, in the chair. His lordship stated the objects of the meeting. After reviewing the many advantages the institution had conferred on the citizens of Cork in former times, he alluded to the motion lately brought before the House of Commons by Mr. Sullivan for the promotion of science and art in Ireland. Considering the great advantages already possessed by Dublin, where there was the Dublin Society and the institution at Stephen's-green, both ably conducted, he thought that the provincial towns ought to enjoy a portion of the proposed grant. Within the walls of the Cork Institution was the foundation of an excellent library, an extensive collection of minerals, some excellent specimens which could with small additions be converted into a good museum of natural history, and an interesting series of antiquities and coins, &c. His lordship particularly dwelt on the great importance of forming a collection of the industrial products of the county of Cork, particularly in the mineralogical department; and the great importance of technical instruction. He deeply regretted the want felt in Cork of a public library, where works of reference could be obtained. With respect to the valuable collection of casts from the antique, which were presented by the Pope to the Prince Regent, his lordship said he referred to them with pride, as they have been the means of linking the fame of Cork with some of the most renowned artists of the age. He trusted that in due time the institution would receive that attention from Government it so fairly deserved.

Mr. James Beale gave a pleasing account of the great success that has attended the career of many of the students who have had their art education in this school, and instanced the case of three sisters, who are now in the enjoyment of £300 yearly, in the employment of Marcus Ward and Co., Belfast.

On the motion of Alderman Scott, seconded by Mr. James Beale, it was resolved that a memorial be forwarded to Mr. Sullivan and Sir Arthur Guinness, Bart., with the thanks of the meeting for the interest they have evidenced in forwarding science and art in Ireland.

#### TENDERS.

For the rebuilding of Moyriesk House, near Quin, County Clare, for J. F. Vesey Fitzgerald, Esq., D.L., Mr. W. Fogerty, F.R.I.B.A., architect, Dublin; quantities by Messrs. Gribbon and Butler:—

Gahan and Son	..	..	..	..	..	23,900
Carroll	..	..	..	..	..	2,780
Wallace	..	..	..	..	..	2,680
Ryan and Son	..	..	..	..	..	2,591
J. and J. Hayes (accepted)	..	..	..	..	..	2,372

B

## PUBLIC RECORDS IN IRELAND.

(Continued from page 206.)

We continue our extracts from the "Fiant" of Henry VIII., and almost at every step we find names and places deeply suggestive and interesting:—

1541.—Livery to Thomas, son and heir of Richard Fitzwilliam, late of Baggot-Rathe; and license to John Sutton, of Tipper, to alienate to him the manors of Dondrom and Thorcastell, and the lands of Dondrom, Balliboter *alias* Boteriston and Oveniston, County Dublin; and to Thomas Fitzwilliam, to alienate to Thomas Fynglas, John Bath, Walter Goldinge, and John Ballinge.

[A whole history is involved in this "Fiant." For historical particulars of Baggot-rath, the locality of the present Baggot-street, Dublin; Balliboter, now Booterstown; and of the Fitzwilliam family, let the reader consult the Rev. Beaver H. Blacker's "Brief Sketches of the Parishes of Booterstown and Donnybrook;" also the lately published first volume of the life of the Earl of Shelburne (a short time Premier under George III., and afterwards Marquis of Lansdowne), by his grandson Lord Edmund Fitzmaurice.]

1541.—Pardon to Thomas Stephens, of Dublin, alderman, late customer of Dublin and Drogheda, constable of the castle of Trym, constable of the castle of Wicloue, and constable of the gaol of Trym. Also to Richard Stanley, gent., under-gaoler of the castle of Trym. [Was this Stephens, or Stephens, another "head centre," and did the under-gaoler play into the hands of the contumacious alderman?]

In this year there is a license to Patrick Barnewell, of Fieldeston, or Fieldstown (alluded to in our previous extracts), to alienate to divers clerical persons several manors and other lands in the County Dublin, and a further license to Robert Ewstace [Eustace] and the others mentioned in the Fiant, to alienate to other persons.

1541.—Pardon to Robert Scurloke, of Wexford or Dublin, bachelor of physic, for heresies published about six years previously. [Robert Scurloke was possibly a barber-surgeon, and it is not unlikely that in some of his alleged heretical productions he administered "a clean shave" to persons who did not wish their characters or beliefs to be too openly bared.]

Here again in the same year of 1541 we have another entry of a pardon to Thady M'Raynylde, or Reynolde, the chaplain who was called upon to surrender his bulls of appointment.

1542.—Grant to Robert Lewes and Laurence Hamond of the offices of controller of the customs, subsidy, tonnage, and poundage of Dublin, and of guager and searcher of Dublin, Drogheda, and Dundalk. To hold to them and their survivor, with a fee of £10 for the office of controller, and all other fees as fully as Robert Casey had. [By a Fiant in 1536, Robert Casey, yeoman of the Crown, was granted the offices of guager and searcher in the ports of Dublin, Drogheda, and Dundalk; and by a Fiant quoted in our last issue it will be seen that one Robert Casey, in 1541, obtained a lease of the site of the priory of the Augustinian Friars by Dublin, with other appurtenances elsewhere. What would the Customs authorities and the Port and Docks Boards of these days say of such characteristic guagers as distinguished the reign of Henry VIII. ?]

1542.—In this year there were pardons given to a number of kerns, captains, and soldiers, several of them hailing from Wexford.

1542.—License to Elienor Nugent, widow of Gerald Flemmyng, knt., to marry whom she will.

Same year.—Grant of English liberty to Dorothy O'Moro and her issue, she being about to marry the son of Thomas Ewstace [Eustace], lord of Kilcolen.

Here is an interesting entry hinging on to the possession of the Dominican Friars by the old Bridge of Dublin:—Grant to Thomas

Cusake, of Cousingeston, knt., in consideration of £168 13s. 4d. to be paid; of the lands of Lindreston, County Meath; parcel of the possessions of the late monastery of Friars Preachers, by the Bridge of Dublin, the site of the priory of Friars Preachers of Trym, with appurtenances, County Meath; and the site of the priory of Augustinian Friars of Scryne, with appurtenances, County Meath. To hold for ever by the service of an eighth part of a knight's fee, with a rent of 12d.

1542.—Lease to John Travers, Esq., of Carrickbren, *alias* Monckenton, and the rectory of the same, County Dublin; parcel of the possessions of the late abbey of the B.V.M. by Dublin [St. Mary's Abbey]. To hold for 21 years at a rent of £24 5s. 2d.

In this year Thomas Cusake, knt., afore mentioned, got the grant of office of clerk or master of the Rolls of Chancery, to hold for life, with a fee of 50 marks sterling out of the customs of Dublin and Drogheda, with all other fees as fully as his predecessor in office.

1542.—In this year we have the first of a number of grants to the Lutrells of Lutrellstown, a name that figures conspicuously in subsequent Irish history.

1542.—Grant to Robert Eustace and others to the use of Thomas Lutrell, of Lutrelleston, knt., in consideration of £88 11s. 8d. paid, and a like sum to be paid, of the site of the monastery of Friars Minors or Grey Friars, of Clane, County Kildare; lands, Clane, Newton of Clane, Muchrath, Flesheston, and Langton, County Kildare; the site of the monastery of Friars Preachers of Naas, with appurtenances, County Kildare; the lands of Rathynnylage, County Dublin; parcel of the possession of the late monastery of Augustinian Friars of Dublin. To hold to the use of him, his heirs, and assigns, by the service of the twentieth part of a knight's fee, and a rent of 9s. 4d.

Here are two more grants in the same year to same Lutrell, knight and chief justice:—Grant to Thomas Lutrell, of Lutrelleston, Chief Justice of the Common Bench, of the lands of Kelleiston and Ballistrowan, County Dublin; parcel of the possessions of the late priory of Lasmulling, County Meath. To hold for ever in fee farm at a rent of £3 18s.

Grant to Thomas Lutrell, knt., Chief Justice of the Common Bench, in consideration of the sum of 10 marks, of the lands of Brewyn, *alias* Bohernybrynee, near Glaschymoky, parcel of the possession of the late Friars Minors of Dublin, already in his possession. To hold for ever by fealty, and a rent of 12d.

[Lutrelleston, towards the close of the last century, came into the possession of the noted Luke White, bookseller, of Dame-street, Dublin, who expended a large amount of money on the beautiful demense, and its name was changed into Woodlands. A racy volume might be compiled in relation to Lutrelleston or Woodlands, the Lutrells and Luke White, who raised himself by energy from a very humble position to be a wealthy and influential personage].

Here is an order that tells its own tale:—1542.—Order of the Lord Deputy and Council for Sir James Dowdall, of Ballinscanlan, knt., to have freedom of one plough land from all exactions, and £10 from the County Louth, he giving security to build within a year a castle in Upper Casteltoun, in Coule, in the marches of the Irish.

Here is one of the juvenile Wicklow O'Tooles, with the maker's name stamped upon the blade, to use the language of Curran. These O'Byrnes and Tooles in the passes of Wicklow, like the young wild ducks, had hardly got outside their shells when they began to march to the tune of "Tramp, tramp." They had a taste for pillaging on the frontiers of the English Pale, so here we have a specimen in 1542:—

Pardon to Arthur juvenis O'Thole, gent., of Casteltewin [Castlekevin].

The following "Fiant," relating to the ancient monastery on Hoggen-green, in the locality of the present St. Andrew-street, Suffolk-street, Dame-street, College-green,

and Dawson-street, will be interesting to Dublin readers.

1542.—Grant to Walter Tyrrell, of Dublin, merchant, in consideration of the sum of £114 18s. 4d. of the site of the monastery of Friars of St. Augustin by Dublin; a messuage and gardens in the parish of St. Andrew; land near Hoggyngreen; messuages and gardens in St. Patrick-street and St. Michan's parish by the said city, and land in Tybberboyne, County Dublin. To hold for ever by the service of the twentieth part of a knight's fee, and a rent of 6s. 1d.

1542.—Grant to Thomas Stephens, of Dublin [Is this the Stephens, the alderman, that was pardoned, mentioned above?], merchant, in consideration of the sum of £86 10s. of the site of the monastery of Friars Minors by Dublin, with appurtenances in St. Frances-street, Clandolkan, and elsewhere in County Dublin; Brage *alias* Borbrune by Glasnymycky excepted. To hold for ever by the service of the twentieth part of a knight's fee, with a rent of 2s.

In this year Walter Tirrell or Tyrrell, Dublin, merchant, mentioned above, obtained a lease of the site of the priory of Lowgheswodie, in Meath or Westmeath, and several lands, to hold for 21 years, at a rent of £23 14s. 4d.

In the same year—Presentation of Thomas Clynche, chaplain, to the Vicarage of St. Mavinoge, diocese of Cashel, the incumbent being of the Irish nation.

1542.—Pardon to Thomas Cusake, of Cousingeston, County Meath, knight, Master of the Rolls.

[How did the Master of the Rolls misbehave himself in so short a time, for earlier in the year we have seen how he obtained some substantial grants? In the "Fiant" for the remainder of this year we find a number of clerical presentations and pardons to the rebellious Irishry.]

1542-8.—Grant to David Sutton, of Tullie, gent., in consideration of the sum of £52 6s. 8d., of the site of the monastery of the Friars Minors of Kildare, with appurtenances in Kildare and Collyerlands, County Kildare; also the site of the priory of Carmelite Friars of Kildare, with appurtenances in County Kildare. To hold for ever by the service of the twentieth part of a knight's fee, and a rent of 2s. 8d.

1542.—Grant to Edmund Sexten, one of the chamberlains, of £8 sterling a-year, being the fee farm of the city of Limerick. To hold for life without account. Remission of 200 marks, the amount of a recognisance of the said Edmund, for the payment of the arrears of the said fee farm. And a grant of £20 which he had paid to the Exchequer on account of these arrears.

[In 1541, 1542, and 1548, there are several Fiant in relation to this Edmund Sexten, of Limerick, who in the matter of leases and grants, appears to have fared well, and got into his keeping large possessions of confiscated property. In 1541, he figures in a Fiant along with Eneas O'Hernan, late preceptor or master of Any or Anee, County Limerick (who received a pension and afterwards got a grant of the custody of the possessions of the vacant bishopric of Emly). On the order of the lord deputy and council for a commission to the Earl of Desmond, we find the name "Mr. Thomas Agarde, Eneas O'Hernan, late master of Any, and Edmund Sexten, to take inventories of, dissolve and put in safe custody, all religious houses in the counties of Limerick, Cork, Kerry, and Desmond. This O'Hernan or Hyffernan received "grant of English liberty" in 1542, and to his issue.

1542.—Grant to Anthony Sentleger, knt., lord deputy, in consideration of the sum of 100 marks, of the site of the abbey of B.V.M., Trym, and the lands of Porche-feldes, near the abbey. To hold for ever by the service of the twentieth part of a knight's fee, and a rent of 8s. 4d.

1542-8.—In this year we have among the Fiant a presentation of Thomas O'Harnan, bachelor of theology, to the rectory of Ard-raher, Kilmaodugh, vacant by the death of

Richard Nangle, doctor of theology; a presentation of William Copland, one of the king's chaplains, to the Church of St. Patrick of Tryme; and a presentation of Uriel O'Hegan, clerk, to the vicarage of Haristown, diocese of Kildare, vacant by the death of Thady McDonel reague; and in connection with these we have a "Note" in Sentleger's hand which will illustrate the style and character of the education and diction of a lord deputy in the days of Henry VIII.:—"My lord chanceler, thys ys geven att instance off my lord off Dublyne byffor our tyme. I wold be glad to speke wt you, and trust ye uylbe her att Sent patryks. I have dyferryd my jurney, for they say the fords be hy we may nott well pas."

Although the language is partly characteristic of the age, we doubt much if the lord deputy spent much of his youth at grammar school or college. The language of Chaucer is racy compared with the above. However, it did not require a great amount of education to carry out the Fiaints of Henry VIII.

We will continue our extracts in our next. There are several of the Fiaints we have passed over quite as suggestive as those we have quoted; but, from a list of between five and six hundred, we must content ourselves with a selection and a few running observations.

### THE LITERATURE OF GOTHIC ARCHITECTURE IN IRELAND.\*

HAVING occupied the reader's attention for a considerable time with what may be called a long discussion upon the subject of our Round Towers, which, whatever may be their origin—Pagan or Christian—claimed a notice for their Gothic characteristics, we will now return for a short time to the question of our early churches and their literature in this country.

As far back as 1845 a work of considerable merit was written by a still living Irish architect, Mr. George Wilkinson, entitled "Practical Geology and Ancient Architecture of Ireland." This work has never received its full meed of recognition at the hands of architects or antiquaries here or in the sister kingdom. Whether the writer's views upon the theory of our Round Towers or in relation to the rise and development of peculiarities in Gothic architecture in Ireland, are subscribed to or not, there can be no doubt of the value of the work as a whole in illustrating the ancient ecclesiastical architecture of this country. We would like to see a new edition of the work, for thirty years' experience since 1845 must have ripened the architect's mind, and added considerably to his stock of knowledge. It may, perhaps, be a question whether Mr. Wilkinson would now subscribe *in globo* to the opinions he expressed thirty years since, and it is possible he might see his way to the modification of some of his beliefs in relation to our early architecture. We hold with him, however, in many particulars in regard to our early Gothic churches, but we dissent from his views (though not as a whole) in the matter of our Round Towers.

Before passing under review some points in the literature of our church architecture in Mr. Wilkinson's volume, we will first give an extract or two from his description of our Round Towers, as we have previously omitted any mention of our author's work as bearing upon the vexed question. At page 83 he writes:—

"To those who are unwilling to admit that the construction of the Round Tower is the work of the ninth and tenth centuries, and that they are also the erections of the early pilgrims or missionaries from the Continent, a considerable difficulty is presented, viz., how to account for the architectural features in these towers being common with those of all Continental buildings, which are the erection both of a prior and similar age. It

certainly cannot be contended that the Round Towers supplied to Rome or Byzantium, to Italy, Germany, or France, the models for their buildings, which, though they contain features and arrangement of structure similar to those of the Round Towers, are in extent so vastly beyond the former, and shew so gradual a change from the ancient and perfect architecture of Rome, that such an assertion would be preposterous. If these doorways and other features of the Round Towers are then admitted to be after the models supplied by these buildings, how is any other conclusion to be arrived at than that which is advanced with regard to their origin and period of construction?"

Mr. Wilkinson had sagacity enough to perceive that in the word appropriation a difficulty would be presented, and since the publication of his work, it has been proved by examination, that works of insertion and alteration have taken place in our Round Towers, and that the doors and windows of some of them do bear traces of inserted ornamentation.

He proceeds:—"It may, however, be asserted, and I believe it is considered by many that these peculiar features of the Round Towers which are common with the architecture of the Continent, and, moreover, in common with the style of architecture in those early churches, which by gradual change succeeded the Round Towers, are architectural features resulting from later causes, viz., the appropriation of these peculiar buildings to Christian purposes, and the insertion of doors and other features, before remarked, on a style of architecture different from that originally belonging to them. It is, however, considered that such cannot be the case. For, first, the masonry around the doors shews no sign of disturbance, and reasoning is altogether against these features having been altered; and doubtless the masonry of these towers is as originally constructed, except in some of the tops, which, from decay or otherwise, required renovation."

We do not hold with Mr. Wilkinson here in believing that reasoning is against the argument that features of the doorways of several of our towers are inserted work. He speaks highly elsewhere of the forethought and ability of the architects or workmen who erected these Towers; and surely at a later period, when some of our splendid Christian churches were erected, there was craftsman skill sufficient to insert ornamental doors and windows without leaving any signs of disturbance in the abutting masonry. Would not Mr. Wilkinson or any other experienced practical architect of the present day undertake to take out the ornamental details of a door or window of an early Gothic period and insert one of a later style without shewing any traces of disturbance or evidence of ununiformity in the size of the stone or courses of masonry. Many of our old cathedrals and churches shew evidences of the architectural style of different periods—so-called Saxon, Norman, and Gothic. Gothic churches have been Romanised, and Classic structures Gothicised, and our Round Towers, which have undoubtedly been appropriated for Christian purposes, underwent alterations at the hands of their appropriators.

Mr. Wilkinson continues:—"The grounds on which it is contended that the doorways are original, is the universal custom of the Normans of using sandstone in their buildings, and expending considerable labour in erecting their doorways—the chief feature in their structures. In the Round Towers the door jambs are formed of sandstone, or very rarely limestone, and always the former where there is any work on them. The later churches of the country are the same, and there is scarcely an instance in Ireland of any Norman remains in which any doorway or decorated portion is of the common limestone of the country, although for the common walls it is used, as being the material of the locality." . . . . "The great height of these towers was doubtless to some extent occasioned by the necessity of making them watch-towers for observing the advance and

retreat of hostile parties; and when we consider that most of these were most likely placed among the trees, as that of Clondalkin now is, the elevation they possess would be necessary to render them serviceable, and it is not improbable that their elevated position answered two purposes, viz.—that of steeples, as indicating the position of the church equally with the former object."

Mr. Wilkinson, it will be seen, upholds the Christian theory of the origin of our towers, and throughout the section of his work devoted to the subject, he adduces strong reasons in support of this theory. He contends:—"How admirably do they shew the peculiar purposes for which they were designed, calculated for the retreat of a limited number, and suitable for one alone, not for military chiefs and retainers, but the clergy of the people who, in the turmoils and constant conflicts of the age, sought security in their retreat, and safety by the peculiar position these towers afforded them, rather than as defenders of a fortified castle; and how admirably adapted were they for such retreats? for the frequent ravages of invading Northmen, or the incursions of rival chieftains were temporary, and in their retreat security was again enjoyed among their own devotees, who could not protect them from the attacks of more powerful assailants, who at all times owed their power of advancing to their numerical or other superiority over those they assailed."

Writing at the period when the late George Petrie's work was strongly influencing the native mind by most favourable but rather indiscriminate criticism, it is not to be wondered if Mr. Wilkinson was leavened with the enthusiasm of the hour, and thought he saw in the style and construction of our towers all that was needed to support the Christian theory of their origin.

Apart from the theory of the origin of our towers, we can warmly recommend Mr. Wilkinson's book as a valuable reference. In it will be found a most useful table, giving a tabular statement as to the form and construction of a number of the principal Round Towers in this country, their names, locality, present state thirty years since, height, form of outline, particulars as to doors and other openings, and details of construction and materials used. Throughout Mr. Wilkinson endeavoured to shew that they possessed features decidedly (to use his own words) in common with the architecture of the Normans, under which designations is embraced the architecture of the Lombards or Normans, and he thinks it is more particularly entitled to the name of Norman from their occupying the country nearest to the British Islands, which was the high road to Rome, and it was chiefly, he contends, through that source that our architecture has been derived, although the priests may have migrated from the eastern or western empire. He holds also that the bold designs of the towers, which from the remains we have, appear to have been structures perfected in the first instance, and he thinks this is "another fact in favour of the long chain of evidence that they are the works of ecclesiastics or missionaries from Rome."

There is, however, a great difference in the constructive details of our towers: some exhibit very superior work over others, some are common rubble work, some squared coursed work, some irregular coursed masonry, some rubble work spirally but rudely coursed in parts; and more, again, the reputed later-erected towers, show specimens of admirable masonry exhibiting regular courses in level layers with joints square and vertical. In fact, the masonry or walling of our towers vary much from common rubble (field stones) to rough hammered, and further, to well-squared stone. In fact, our towers as well as our churches shew a progressive improvement, and doubtless cover a considerable period of time. But still it is quite possible that some of the later-erected ones are not superior to some of the earlier; for, have we not worse public buildings and churches erected now, both in regard to their architec-

\* See ante.

ture and masonry, than we had centuries since, notwithstanding our boasted advancement in the principles of Gothic architecture and our glorification of "the Gothic Revival?"

Passing on to the subject of our early churches, Mr. Wilkinson considers that our early stone-roofed churches or crypts are the direct successors of our Round Towers—in fact, that they illustrate the period of a "Transition." The position of the room in the roof instead of the crypt as under the English churches, Mr. Wilkinson considers is very peculiar, and is evidently the result of a change from the Round Tower, for, by this arrangement, he says, the security the Round Tower afforded is now obtained over the church, the approach to which is through the elevated circular opening in the front gable. These remarks have reference to the plan of Killaloe Church; and similar in construction are—St. Kevin's at Glendalough, Columbkille at Kells, Cashel, and Devenish Island. One, in the opinion of Mr. Wilkinson, as a more advanced building, and one erected with limestone, is the peculiar and steep stone-roofed church of St. Douglough, on the Malahide-road, County Dublin. He considers the one at St. Kevin's, erected with the clay-slate of the locality, as most likely the oldest. This ancient little church has a miniature round tower placed upon its gable, and concerning which Mr. Wilkinson says it was "doubtless used for the same purpose as that of the original Round Tower; and, what is peculiar, and differing from that at Killaloe, the approach to the upper loft is through a square hole in the ceiling or crown of the arch, similar to that shewn in the drawing of the arch of the Round Tower of Meelick, and forms the communication with the chambers under the ridge from where the Round Tower is ascended. The form of the door of this building is peculiar, the jambs inclining, the upper part of the building being narrower than the base, and is evidently borrowed from the inclined sides of those Round Towers; nor is it a matter of surprise that in the early application of a stone doorway to a building of the kind the form of outline before them should be imitated."

First, in our opinion, came imitation when needful, and next appropriation. The tower preceded the church, as acknowledged; and when churches became general, the towers, though not built or adapted for Christian ceremonies, their vicinity was selected by the early missionaries, and the buildings themselves used as useful adjuncts. Their height, durability and openings at top peculiarly fitted them for useful purposes connected with the church, although as forts of defence, having an origin coeval with the church, they could afford but little protection for churchmen or their treasures.

Still speaking of St. Kevin's, Mr. Wilkinson continues:—"Opposite the door, at the east end, another opening has been formed for entering into a chancel portion, since removed, as shown by the gable line. The east contains a portion of a window of that circular form so common in the early small churches of the country, and the same as in the Round Tower of Clonmacnoise, and of pure Norman character. The elevated position of the window in this building (and its narrow external opening) is similar to that in most of the churches, and shews the great regard paid to security."

If the large and now isolated Round Tower at Glendalough, towering high in the air, was erected by the early missionaries, and was used by the Christian clergy for the purposes stated, then for what useful ends could the little tower on the gable of St. Kevin's answer? Now here is most likely, as Mr. Wilkinson says, one of the oldest of our stone-roofed churches (and be it remembered that our Round Towers are stone-roofed), built long after the era of our first towers (and these last were preceded by still older stone-roofed beehive-shaped structures). Is it improbable that a truncated tower, i.e., its top, may not have given the

model for the early belfries or bell-cots of our primitive churches. An adaptation that was first considered merely in the light of an ornamental finial became afterwards to be utilised as a useful adjunct; so in course of time cropped up the variations of the belfry, steeple, or spire, or both combined—ornament and utility being finally attained, the pre-Christian Round Tower furnishing the first idea. Our towers have witnessed an era or eras of appropriation and alteration, the same as our Hiberno-Romanesque and Gothic churches have witnessed or underwent their periods of "restoration." Indeed not a few of our ecclesiastical structures have had additions in several styles, from the eleventh century to the period of what is called "Debased Gothic," a mixture or conglomerate of mangled "Orders" and "Styles." Could anything be more likely than when some of our towers were appropriated and attached to our early churches that the ecclesiastics would endeavour to harmonise the architecture of both buildings as far as they could? Hence, there is a uniformity in the style of some of the doors and windows of the towers with those of the churches.

We are not unaware of the difficulties attending the elucidation of both the Pagan and Christian theories belonging to our subject, and the stress that has been laid upon the absence of the use of lime at a period anterior to the erection of our Christian structures; for, admitting for the moment that the Round Towers were Christian edifices, and coeval with the erection of our early churches, the argument on the Christian theory side would be strong on one point, but as we do not admit the argument, we are free to claim that our Round Towers, as Pagan or pre-Christian edifices, proves that the use of lime was known centuries before the Christian era. But of this, more anon.

#### CIVIC LYRICS.—No. XCI.

##### OUR OPEN SPACES.

(A Plea for the Working Classes.)

On again!—a Square's a Square—  
A public People's Garden,

To give the poor ones rest and air  
As well as Dolly Varden.

The workman's wife, the workman's child,  
With pinched and pallid face,  
Who cannot taste of nature wild,  
Have need of Open Spaces.

On again!—a Square's a Square,  
For health and recreation.  
Who would deny the workman share,  
And scandalise the nation?  
Unbar the gates on every side,  
And sweep away all traces  
Of feudal power and empty pride,  
And free our Open Spaces!

CIVIS.

#### PLANS OF LABOURERS' COTTAGES AT GARRYHINCH.

APROPPOS to our remarks on the plans of cottages built on the Duke of Devonshire's estate in the south of Ireland, a correspondent sends us some account with a sketch plan of a row of sixteen labourers' cottages recently built for Richard Warburton, Esq., D.L., on his property at Garryhinch, King's county. If not the best that could be devised, yet we consider them far superior to the cottages we recently commented upon, both in the matter of arrangement and accommodation. Briefly stated, the plan shews a kitchen or living-room, 12 ft. 8 in. by 16 ft. open to the roof, the floor tiled with fire tiles. There are two bed-rooms on ground floor, the front one being 12 ft. by 8 ft. 6 in., the back, 12 ft. by 7 ft., with bearded floor on joists. There is a bed-room in the roof over these two bed-rooms, with window in the gable, with means of access by a step-ladder. There is also a provision made for additional buildings at the rear of the kitchen. The out-houses are—a piggy, pig-yard, cow-house, tank, and water-closet. There is a good sized yard shewn in the rear of each cottage, 40 ft. deep, and a garden in front.

There is also, if we read the figures aright, from 1½ to 8½ acres of land attached to each cottage, in addition to yard and garden which equals 20 perches. The cottages are all slated, ceiled, and plastered, and are detached.

Accepting the statement received, and the sketch plan to be accurate, Mr. Warburton is entitled to warm consideration for providing such decent accommodation for his labouring tenantry. We would like to have been informed what was the cost of construction, what kind were the materials, if local or otherwise, and what rent is charged. We hope the water supply is pure and the drainage perfect; if so, the labourers on the Garryhinch property have reason, other things considered, to feel satisfied with their considerate landlord and comfortable dwellings.

#### THE MAIN DRAINAGE SCHEME.

At the date of our last issue, Mr. Joseph T. Pim, in a letter addressed to a morning contemporary, thus writes of the Bazalgette-Neville scheme. His letter is worthy of every consideration on the part of our heavily-taxed ratepayers:—

I perceive that, by a clever stroke of policy, the Government have introduced a bill at the far end of the session, when effective opposition on the part of the ratepayers of Dublin is scarcely possible, to empower the Corporation to borrow £500,000, the interest on which must be paid by the citizens, for the purpose of carrying out the Bazalgette-Neville scheme.

This proceeding on the part of the Government is in direct opposition to the wishes of the ratepayers, as declared by them at three different public meetings held under the presidency of the Lord Mayor during the past year, and in opposition to the numerous and influentially signed memorial addressed by the ratepayers to the Chief Secretary last April.

The wishes of the ratepayers were clearly expressed in the concluding sentence of that memorial, viz.:—"That a properly conducted inquiry into all the circumstances of the case before a Royal Commission should precede any further legislation on the subject, or any increase in the power of the Corporation to levy taxes on the ratepayers of the city of Dublin."

The chairman of the Main Drainage Committee of the Corporation himself publicly advocated such an inquiry by a Royal Commission; and stated, furthermore, that this was not merely his own opinion, but the opinion of the Main Drainage Committee itself.

The case of Glasgow has been submitted by Government to Sir John Hawkshaw, and his report has, I believe, not yet been made. Surely, Dublin might learn something from this report, which will soon be published. And if, after Sir John Hawkshaw has examined and considered the various drainage schemes for Glasgow, the city of Dublin could have the benefit of his consideration of the Dublin schemes, nothing but good could result. Mr. Harsard, the author of the much-vaunted Vartry Water Scheme, has offered to guarantee the carrying out of a scheme of main drainage for Dublin, which shall be approved of by Sir John Hawkshaw, for the sum of £340,000. But his proposal is not thought worthy of notice by those guardians of the public purse to whom the expenditure of the larger sum of £500,000 appears to be more satisfactory.

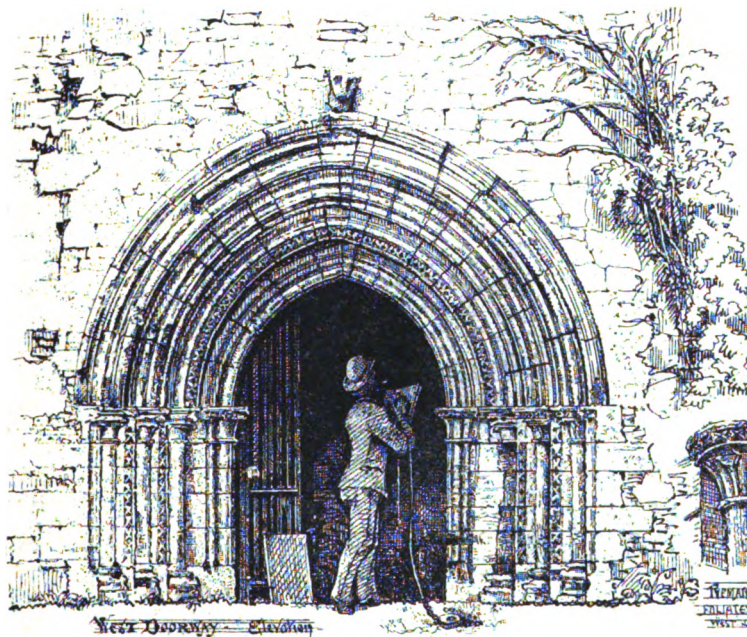
Why is the Government so anxious to assist a party in the Corporation in forcing on the unwilling citizens this Bazalgette-Neville scheme? The Government not only proposes to take upon itself the negative responsibility of supplying the funds, but it is so enamoured with the scheme that it wishes to become an active participator in the carrying of it out through representatives on the Main Drainage Board. Possibly before committing itself in this way to the Bazalgette-Neville scheme, the Government has given the citizens the benefit of a Royal Commission of inquiry, free of charge, by submitting the scheme to the consideration of the Engineers of the Board of Works, and that they have reported in its favour as the best possible plan, taking efficiency and economy into consideration. If such be the case, it would be only fair to the citizens to give them positive information to this effect. And, perhaps, if some Government officers have looked into the merits of the scheme, they could afford the ratepayers some information on a most important point, respecting which the Corporation and the Main Drainage Committee have



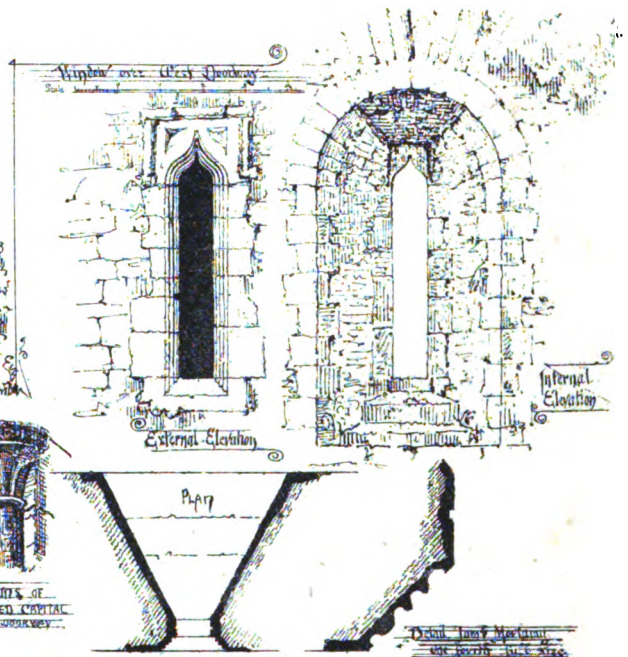


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Measured and drawn by J. P. P.



West Doorway Elevation



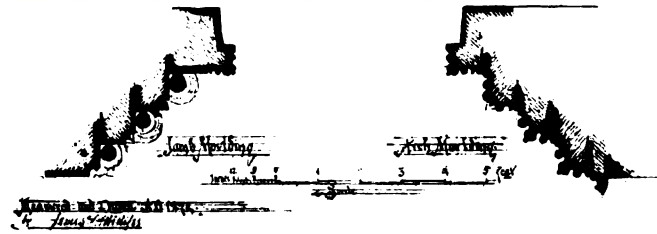
External Elevation

Internal Elevation

Pap

Remains of External Capital West Doorway

Detail of West Window



West Wall Elevation

West Wall Elevation

Corry Abbey, County Down, 1874

Drawing No. 9



hitherto maintained a masterly silence, viz., what will the annual cost of maintaining the works be, which the ratepayers will have to pay in addition to the interest and sinking fund on the loan?

What will the two great pumping stations cost per annum? What will it cost to remove the solid sewage matter (which, coming from our macadamised and unscavenged streets, must be enormous) from the colossal tank to the North Bull? For the Corporation are bound to retain the solid sewage in the tank, and to remove it periodically, in order to preclude the possibility of its silting up on the bar.

Will the removal of this solid sewage produce periodic epidemics of typhoid fever in Clontarf, as a similar operation did in the neighbourhood of Birmingham? And will it consequently be needful, as at Birmingham, to deodorise this sewage matter at a cost of £10,000 per annum?

The passage of this bill through Parliament for the loan of £500,000 will be for the Government a measure of very safe generosity, for they will take excellent care about the security for the interest and sinking fund, but the ratepayers of Dublin may rest assured that for them it will be a desperate leap in the dark.

### THE WHITWORTH MEMORIAL.

A MEETING of subscribers to the above was held on Friday at the Whitworth Hall, Drogheda. The chairman (John Chadwick, J.P.) stated that the object of the meeting was to forward the erection of the contemplated testimonial to Benjamin Whitworth, M.P., a gentleman who had effected so much good for their town. The delays which had occurred would have the effect of turning what was intended to be a compliment into an insult to that gentleman. The design had not yet been finally decided upon, and the subscriptions were under £800.

Estimates were received from Messrs. Pettigrew, Navan, to execute the work for £500; and from Messrs. Robinson, Belfast, for £520.

The site chosen for the fountain is not, to our mind, the best that could be selected.

### THE SITE OF NEWGATE.

WE possibly may, on an early occasion, give some historic particulars in relation to the site of Newgate, and of the building itself.

In the Corporation, a report of Committee No. 3 recommended the letting of the site of Newgate for a term of 75 years, at a rent of £140 per annum, to Messrs. Patrick Moran, J. Flanagan, Patrick O'Hanlon, J. Halpin, and W. H. Byrne, for the purpose of being used as a fruit market. The committee recommended that security should be taken to have the works completed within six months, under a penalty of £500, and also that certain improvements should be made which were mentioned in a report of the City Architect. The last-mentioned report, dated the 28th of July, stated that the plan of the purchasers in its general features was appropriate enough for the purpose intended; but that a specification of the works was needed to show that the walls and timber would be of proper strength. The City Architect also drew attention to the fact that no provision appeared to be made in the plan for either surface or roof drainage, and that while some of the sheds appeared to have fire-places, no means of exit for the smoke was provided.

Mr. Dennehy said that within the last month an order was made to have the site of Newgate let by auction. He regretted that a property, capable of producing £140 per annum, had been allowed for so long a period to remain useless. He did not think the council were to blame, nor did he believe that Committee No. 3 were to blame, but he thought the officers were to blame; for, so far back as December, 1873, an order was made to have an auction of the site, but nothing had been done until a few days ago. This proved to him that while the administrative power of the Corporation was equal to every necessity, its executive power appeared to break down. No matter on whose shoulders the blame was to be cast, it was clear that blame was to be attached to some officers for allowing this property to remain unprofitable for so long a time. The bidding of which the council were now informed took place in the usual way, and the gentlemen named in the report were declared the purchasers. The site was to be used as a fruit market, the plan of which was before the council. Care had been taken to provide that no trade or occupation in the

slightest degree injurious to the inhabitants of the locality should be carried on in the place. He moved that the letting be confirmed, and that the report be sent back in order to have the recommendation of the committee and of the City Architect carried out.

Passed.

### WEST MEDINA CEMENT WORKS, ISLE OF WIGHT.

WE have been informed that Mr. Alexander L. Menzies, who has for thirty years filled the position of manager at the above works, has retired from same. His many friends decided on presenting him with some practical token of their regard for him. They assembled, to the number of 168, at the Queen's Rooms, Newport, on Monday evening last, when a testimonial, consisting of a handsome timepiece and a pair of Grecian vases, was presented to him. After partaking of an abundant and substantial "spread," the chairman (Mr. H. G. Glaysher), in proceeding to make the presentation, addressed Mr. Menzies thus:—

"Manly character and forbearance, coupled with honest straightforward dealing, and a kind and sympathetic spirit, always beget their own reward; such it is which leads us to approach you, after knowing you for upwards of thirty years, with the intention of proving in a substantial form how much we as workmen (having been engaged directly under your management during that period) wish to follow the ancient rule of giving honour where honour is due, and show our appreciation of the various kindnesses we have invariably received at your hands. For this purpose a subscription has been opened, in which we have allowed several of your friends to join, and we are proud to be able to offer you this exquisite timepiece, with the accompanying vases, which we trust will prove to you how very grateful we are for all past favours, and we hope will serve to gladden your heart, and keep in your remembrance during your retirement from active labour. In presenting this small token of our appreciation, we sincerely hope that you may live many years to look upon it, and think of us with that favour and kindly feeling which has always been your wont in days gone by; and may we venture to suggest that you will place it in such a position that it may come daily before your notice, so that your thoughts may frequently revert to the happy days which you have for so many years spent amongst us."

The testimonial was then uncovered. It consists of a splendid timepiece in marble, bronze and gold, the design being as artistic as the mechanism is ingenious. On one side of the dial is an aneroid barometer, and on the other a calendar, which, in addition to indicating the month, week, and day, gives the phases of the moon and other astronomical information. On the base is a plate engraven as follows:—

"Presented to Mr. Alexander L. Menzies on his retirement after 30 years' management of the West Medina Cement Mills, Newport, Isle of Wight, by the whole body of workmen and others connected with the business, as a mark of regard for his industry and attention to his duties and kindness to those under him. July 30th, 1875."

Accompanying the timepiece are two elegant bronze vases, of classic mould.

The Mayor of Newport said it was impossible to view such a gathering as the present with feelings other than those of deepest pleasure and satisfaction—a gathering of the employers and employed, showing how good and excellent was the feeling on both sides, and showing, too, that merit and faithful discharge of duty were certain, sooner or later, to meet with their just recognition and reward. A great historian had pictured the time when the New Zealander might stand on the ruins of London Bridge, but he had no fear that England would decline so long as she continued to be the workshop of the world, and one means of maintaining her in this position was the encouragement of the friendly relations between employers and employed of which they had such a conspicuous example that evening, and which was worthy of imitation from one end of the country to the other. If this country was to decay, the danger would arise from the differences which sometimes seemed likely to occur between capital and labour, leading to an amount of dissatisfaction and unsettlement which would have the effect of driving our trade and manufactures to other lands. There could be no doubt that the skill and industry of this country, if properly regulated, were able to cope with the whole world, and one important principle which should be always brought prominently forward was that capital and labour were materially dependent, and the one

could not do without the other. They had received that night with great enthusiasm the health of their employers; it was now his pleasure to propose the health of the employees. Without good workmen no business could prosper, no matter how much capital was invested in it, and Messrs. Francis and Co. were privileged to have in their service some of the best workmen in England.

### PICTURES—WESTMINSTER, CLARE, AND ABERDEEN.

WESTMINSTER.—Mr. Disraeli said on Friday night that millions had been found already for carrying out the Artisans' Dwellings Bill. I hope some of it will be expended not very far from Parliament. Under the very shadow of the Victoria Tower, hidden away behind fine houses so close to Westminster Abbey that one almost expects to hear the organ, there is a rookery which beats anything of the kind I think I ever saw. It is simply four or five acres of organised filth. There are about a dozen or so streets, and many courts and blind alleys. The houses are old, crumbling, rotten. Four, five, and six people live in a room. They are mostly women, and when I went through the place a day or two since I saw hardly any male inhabitant, save lads and a few scarlet-coated soldiers, who had come to visit their mistresses. The women seemed to be all out of doors. They sat squat four deep together on the pavement, and even along the street. Most of them were smoking short clay pipes. Their attire would have been picturesque had it been clean, for it was very scanty, and so lightly put on that not only did it not hide, it did not cover, the figure, and left arms and breasts fully exposed to view. Some of the elderly women were nursing babies, and playfully puffing smoke in their faces. The young ones sat with dishevelled hair and loose garments, talking with oaths such as I never heard men use. When women begin that sort of thing they know no moderation. I am told that I did not go into the worst alleys. I had the fear of scarlet fever before my eyes. But I saw enough to make it certain that the rookery ought to come down.—*London Cor. Hampshire Independent.*

CO. CLARE.—Ten human beings in a room barely 13 ft. long by 7 ft. broad; seven sleeping in one bed, and a younger member of the family in a hen coop; misery not a degree removed from starvation abounding within, and a dung-hill of putrefied matter, from which arises a horrible stench without. Such is the painful story told by one of the sub-sanitary officers of the union, of a family living on the roadside near Moyreisk. The house, a mud edifice, was in a tottering condition, and supported by props; the roof was only one in name, incapable of resisting the weather, so decayed and riddled with holes; the walls, unfurnished and unwashed, momentarily threatened destruction to the poor creatures who sought their protection. The household property consisted of a bed, a hen coop, and a few other wretched articles not worth naming. The mother and children were wretchedly clad, one child being quite naked. The cabin was tenanted only at night; the common highway was their home during the day. The only visible means of support for the starving mass was the outdoor relief allowed them by the guardians, which could not answer the letter, and barely fulfilled the spirit, of its purpose.—*Clare Journal.*

SCOTLAND.—The *Northern Ensign* says that in a fishing village not a hundred miles from Fraserburgh there is a house of four apartments occupied as follows: 9 men, 5 women, 19 children, 4 parrots, 13 canaries, a bitch, 4 pups, and 2 cats—making in all 56 occupants!

THE COOKE STATUE.—We learn that the statue to the late Rev. Dr. Cooke is ready, and will shortly be inaugurated. The site chosen is at College-square, Belfast.



## ROADS AND PAVEMENTS—

THEIR CONSTRUCTION, WEAR AND TEAR,  
SANITARY ASPECTS, ETC.

(Continued from page 213.)

## TRIALS OF STREET CLEANSING BY JETS.

THE Sanitary Commissioners directed trials and a report on them to be made by Mr. T. Lovick, C.E., of the comparative time and cost of street cleansing by washing. From these trials, which were made at the West-end in several streets, it appeared that complete washing by jet was effected in a third of the time in which it was accomplished by the scavenger. But these experiments could then be made only with jets of 20 feet vertical height. Other trials at Sheffield, by Mr. Lee, C.E., one of the engineering inspectors to the Board, made with a jet three times as powerful, or 60 feet, gave results with a third of the time, a third of the expenditure of water, a third of the labour, a third of the total expense, and at about a tenth of the time of the hand-scavenging. The expense with the more powerful jet, taking the cost of water at the price at which it would be on a public footing at 2d. per 1,000 gallons, was for labour 2d. per 1,000 yards, and water 1d. With the lower jet the expense of labour was 8d., and of water 2d. These results were obtained upon old boulder, or rough cobble pavements. With smooth pavements, and with jets skilfully applied in streets, the effect would be much greater. With some unctuous and adhesive mud the aid of the street-sweeping machine would be required to expedite the work. The total additional quantity of water required for this service would be about one-third of that which was then and is now wasted by the intermittent system of supply, and this on the constant system would suffice for the cleansing of the whole of the footways as well as the carriage-ways of the metropolis. Viewing the common parochial regulation requiring every householder, by himself or his servant, to cleanse properly the footpath before his house, as rude, wasteful of labour, and impracticable in its application to more than a quarter of a million of householders, the Commissioners directed inquiry to be made as to the extra expense at which it might be more satisfactorily accomplished as a common service; when it appeared that a penny per week, or less, would cover the expense of cleansing by jet. The total cost of cleansing the footways as well as the carriageways in the Strand daily was estimated at 4½d. per house weekly; in High-street in the Borough, it would have been 8½d. per house per week for the daily cleansing of the footways and the carriageways.

In ignorance of the scientific construction of drains and sewers, so as to keep them self-cleansing and free from deposit, it was objected to the introduction of the street-sweeping machine in Manchester, that it would occasion more mud to be sent into the sewers, and would clog them. Sir Joseph Whitworth engaged that if such a result did occur he would undertake to defray the expense of cleansing them. But it never did occur, from the extra cleansing given by his machine, and indeed it was admitted that the sewers required less expenditure for cleansing them than they did before. Some later trials of cleansing by the jet were made by Mr. Haywood, the city engineer, with general advantageous results, though with conditions of extra expense which are not accepted as of general application on a public system of water supply for the metropolis. But with reference to the discharge of the liquified mud through the sewers, he states that "during the experiment in street washing I had the gullies and sewers within the city carefully examined from time to time, and they were found to be not only as clean as they previously were, but if anything cleaner; and indeed I think that if the surfaces of the city pavements were cleansed by water alone, that both gullies and sewers would be cleaner than at the present time, for, as before stated, much dust or dirt is now swept into them in

such condition that the usual current does not readily move it; whereas if the streets were daily washed nothing would go into the sewers excepting that which found its way there by reason of its fluidity. The street sweepings would, in fact, run into the sewers in as great a state of dilution as they do even during the heaviest storms of rain; and I believe, therefore, that no injury would accrue thereby to the sewers under the control of the commission, but, on the contrary, that they would be benefited." And yet the city sewers, when examined by the Sanitary Commissioners, were found to be by no means of a first class for such a service. It marks the empiricism which at present commonly rules in such works, that it should be supposed that matter in such a state of fluidity as to flow over the flat surface of the street, and therefore with increased friction, must with less friction when discharged and concentrated into a narrow channel beneath—instead of receiving an accelerated flow—become stagnant and accumulate there. It is desirable, and important on principle, that the contrary result should be known and applied;—that as much surface matter as possible should be removed by the quickest, cheapest, and best method that there is by suspension in water. If every load were to be taken to a distant dépôt as soon as the semi-fluid matter could be collected, the cartage would be increased, perhaps, eight or ten fold. If the cleansing were carried on under conditions of very wet weather, it would be almost impracticable. If the dépôt for the city were a mile distant—and it might be difficult to find any so near—it might involve a hundred miles of cartage daily for speedy cleansing. It is shown that the service of street cleansing, to be effectual, must be closely combined, and must indeed be as one. Hence the error of the vestries and local administrations, who—as if it were to multiply contracts for patronage—let the work of watering the streets to one contractor, who does the work at his own time and in his own way; and the work of sweeping the streets to another contractor, who does the work at his own time and in his own way—both operations being thus spoiled. The sweeping contractor usually delays his work as long as he can—lets the mud remain as long as he can; and waits for the rain to enable the mud to be swept to the side, and late at night to get as much of it as he can down into the sewers to save the heavy expense of cartage. He will not, if he can help it, contend with the surface unless when he may do the work with the least disadvantage to himself. His great object is to avoid cartage. Now, the jet which, with the aid of the street sweeping machine, dispenses with the scavengers, attains the desideratum of dispensing, to the greatest extent, with the annoyance and labour of cartage. Instead of waiting for the uncertain rain, the jet is at instant command to do, in the most complete manner, the work of the thunder-shower, to put all soluble matter into the "creamy" condition, for its immediate discharge into properly adapted sewers for its instant removal with all other soluble matter from thence.

Mr. Haywood has stated that the sewers of the City would be benefited by the practice. Sanitary science pronounces that the health of the population would be benefited by it. The death-rates of the metropolis reach their lowest point after continued, unusually heavy rainfalls, which have swept and kept down the stagnant deposit of old and ill-constructed sewers and their putrid emanations. The jet, properly applied, would in dry weather regularly do the work of heavy rainfalls or of thunder showers. The combined surface and subterranean cleansing in streets of large traffic, and with sewers properly adapted for quick removal in water, will be of great sanitary importance.

In Paris, where much of science enters into the administration, the principles set forth by the General Board of Health have been adopted with the appliances then recommended, but with a low amount of water

power, requiring a greater amount of hand-sweeping than would otherwise be necessary. But as it is, much of the surface mud, the liquified manure, is removed quickly in suspension in water, fresh and undecomposed, and to the greatest extent unwasted, by means of which a superior order of vegetation is obtained such as has never before been seen near Paris.

There, as elsewhere, as a better knowledge of hydraulics has begun to extend, as the force of sweep gained by concentrated flows in smooth tubular or oval sewers has become better known, catch-pits, which were regularly made cesspools, to detain street detritus, are being abandoned, and surface matters are swept to what is a great general catch-pit at the outfall where it may be most safely and economically dealt with in bulk.

To abate the inconvenience and torment of excessive street dust in summer time, or in dry weather, street watering is used to keep it down. But the evil of such amount of dust is in great part due to the defective condition of the pavements and cleansing of the road surfaces on which the dust is produced, and the sanitary evil is often aggravated by the means used to relieve it. Open gravel road-ways, Macadam pavement—merely mud-bound—loose-jointed granite or wood pavements of the common construction are permeated with the solutions of the surface dung deposits, and become excrement sodden. The dry decomposition of such matter is less injurious than the moist emanations produced by street watering at certain times, denoted by offensive smells, even in first-class thoroughfares at the West-end of the metropolis. To repress these offensive and noxious emanations, the distribution of disinfectants from the water-carts is frequently urged, in like manner as the use of disinfectants is urged to mitigate the emanations from putrid deposit in badly constructed sewers. The expense of the street watering should often go far to the formation and proper keeping of impermeable street surfaces, from which faecal matter would be immediately removed before it could enter into decomposition, and on which at any time there would be scarcely anything to be removed.

Proper cleansing by jet on proper pavement, as described, leaves little or no mud or dust to be kept down. A well-paved courtyard, kept clean by water and mop, should be the type of the general condition of the thoroughfares of the metropolis under a proper competent scientific administration, which would maintain a state of cleanliness and freshness heretofore unknown.

## PRIMARY CONCLUSIONS.

On the whole, it will be found that there have been established, as standing demonstrations long made, but existing fruitlessly, during nearly the last quarter of a century, for the guidance of local administrations, viz.:—

First, that the cleansing of the surfaces, and the preservation of the subsoils immediately beneath them, from putrid animal or vegetable matter in suspension or solution, is an important branch of sanitary art and science, powerfully affecting the health of the population, which ought, for the safety of the health and the lives of the population, to be placed under the responsible supervision of sanitary officers and special engineers.

Second, as regards the surface pavement of the carriage ways of streets such as those in the metropolis, by the right application of engineering science and art in the improved levelling and paving, the tractive force required for persons and goods may be reduced more than one-half, with a proportionate reduction of street dirt and dust.

Third, by the application of special engineering and mechanical art in hydraulic and drainage arrangements, the time and expense of the surface cleansing of streets may be reduced more than one-half, and injuries to goods and furniture, and clothes, as well as excessive dirt on the person, and serious injuries to the health, may be prevented.

(To be continued.)



### THE LEGAL DUTIES OF A COUNTY SURVEYOR.

At the recent meeting of the Grand Jury of the County Kildare, the following is reported by the local *Express* as part of the proceedings:—

Major Borrowes said that he was on the committee of the county infirmary, and it was represented to him the other day that Mr. Brett (county surveyor) was present at a late meeting of three or four members of the committee. Nothing could be kinder than Mr. Brett's proposition, but he said at the same time he could not consider the county infirmary under his charge, and that it was not part of his duty to look after the repairs without being paid a separate remuneration or the usual fee for his services. These observations also referred to the surgeon's house. It would be as well for the grand jury to know whether the county infirmary was not one of those buildings, together with the surgeon's house, which is included in those buildings in the charge of the county surveyor. He spoke under correction, and Mr. Brett could say if he (Major Borrowes) was correct in his statement.

Mr. Brett—You were generally correct, except that you state I insisted on payment.

Major Borrowes—I did not mean to convey that impression. You were most kind, and offered your services, but you said you did not think the building was under your charge.

Mr. Medlicott—Mr. Brett's words were, he was the servant of the grand jury, not of the committee.

Mr. Hendrick said that Mr. Brett most kindly accompanied him all over the building, and made no statement whatever of the kind.

Mr. Brett said that it was due to himself to say he could not take on himself the responsibility of looking after the repairs of the county infirmary or surgeon's house. That duty was imposed by law upon the board of governors of the infirmary, and he was afraid that he could not undertake it.

Major Borrowes—I am the party who wrote to you on this subject. You don't think the governors can call upon you for your services as county surveyor?

Mr. Brett—I think not.

Mr. Trench said that this was a very odd matter. Mr. Brett distinctly states he does not think he is bound to do this work. Mr. Brett was indeed very kind and civil, and said he would give his services gratuitously as a matter of kindness. He (Mr. Trench) said that he did not think it was desirable or suitable that they should have the county surveyor's services unless they were entitled to them. It was desirable that they should know their position in this respect, and he would move—"That the opinion of counsel be obtained as to the legal duties of the county surveyor as refers to the public buildings, especially the county infirmary and surgeon's house, and that Major Borrowes, Mr. Mansfield, Mr. Medlicott, and Mr. Trench be appointed a committee to obtain this opinion, and to instruct Mr. Brett in conformity therewith between this and next assizes."

Mr. Medlicott seconded the resolution, which was carried.

### SANITARY ENGINEERING.

(Concluded from page 207.)

#### HOW IS THE SEWAGE TO BE DISPOSED OF?

THREE preliminary conditions or requirements may be stated—each involving many difficult problems and debatable theories. 1. The sewage ought to be purified so that the effluent water can be safely discharged into ordinary water-courses. 2. The residuum ought to be removed, and if possible utilised in a beneficial and economical manner. 3. The processes of purification, removal, and utilisation ought to be carried on inoffensively in a sanitary point of view.

Of the various methods of purification which have been proposed, irrigation of land and crops seems to be the simplest, most approved, and most effectual. The Sewage Commissioners, in their third report (1865), page 3, state very decisively that "the right way to dispose of town sewage is to apply it continuously to land, and it is only by such application that the pollution of rivers can be avoided." But irrigation would not of itself be effectual without a sufficient absorption and filtration through the soil. Professor Corfield states (in a very able and exhaustive work on the treatment and utilisation of sewage) with reference to this point:—"We must insist upon the condition of filtration, which is an absolutely essential one in any attempt at the purification of sewage. The success of the irrigation process depends upon this. It is not sufficient to let sewage run over the surface of the land among the crops, and to

suppose that it may be purified in this way; it must not merely run on the land, but also *through* it. The power of the crops themselves in abstracting the manurial constituents from the sewage is doubtless exceedingly great, but it must be remembered that this power chiefly resides in the roots, and that as the soil itself has been proved capable of extracting these manurial constituents, *a fortiori* will this be done the more completely when the soil is aided by the avidity of the roots of a growing crop to absorb their natural nutriment."

But in order to obtain the most beneficial results from sewage irrigation, considered as a means of fertilising land, it is expedient to deprive the sewage of its solid constituents before the irrigating process is begun. The reason for this is that the solids have comparatively very little manurial value, and to allow them to be spread over land would be productive of offensive and perhaps dangerous consequences.

Many contrivances and processes, mechanical and chemical, are in use for effecting the required separation, but probably a simple depositing tank or cesspit would be most suitable for the present case. The chief objection to a tank would be the offence caused in removing accumulations of deposit, but this might be palliated by using some cheap deodoriser.

With reference to disposal of the solids after separating them, a system of treatment similar to that lately invented by Major-General Scott, R.E., would be advisable. In General Scott's process the sewage is treated with lime and clay made into a thick paste, and mingled with the sewage as it flows into a tank; and while the effluent water flows out in a comparatively pure state, the remaining sludge or semi-solid matter, after being dried and burnt, is converted into a valuable cement. The operation in fact closely resembles the mode of manufacturing Portland cement, the ingredients of which are chalk or lime, and clay, mixed together with a large quantity of water, and afterwards dried, burnt, and pulverised. It is said that "although this process (General Scott's) makes no attempt to extract any of the valuable manurial ingredients from the sewage water, its peculiar advantages are undeniable and most practical. It extracts from the sewage water additional lime and other mineral matter valuable in cement-making, and leaves an effluent far better suited for irrigation than the original sewage water, for it increases the quantity of ammonia in it. It also promotes the oxidation of the dissolved organic matter by the slightly alkaline condition imparted to the liquid. It removes from the liquid the whole of the faecal matter which would choke the pores of the soil and injure vegetation. And when the land will bear no more irrigation, it enables the effluent to be dealt with and rendered completely pure by a comparatively small filtering area."

It happens fortunately that in the neighbourhood of Naas "the lie of the ground" is peculiarly favourable for carrying out a judicious system of irrigation, and doubtless, land can be obtained for that purpose sufficiently removed from habitations, yet not so distant from the town as to increase the cost of the whole design to an excessive degree. Another favourable circumstance is that the land is generally porous, easily drained, and of the quality which would be likely to bear continuous irrigation without becoming "sick," or overcharged with injurious residue.

Near Edinburgh sewage irrigation has been applied on the Craighentny meadows for the last 20 years, and yet the land is still highly productive. The quantity of sewage applied to these meadows is said to be enormous: in some parts it is applied at the rate of the refuse of 350 people per acre. "At the Beddington meadows, near Croydon, the drainage of from 30,000 to 40,000 people has been disposed of upon 260 acres of land for the last seven years. . . . Here, too, the results of the purification of the effluent waters are, as stated in the Public Health Report above referred to, and also by the Rivers Pollution Committee, exceedingly favourable, even in winter; it was satisfactorily cleansed, and contained but mere traces of suspended matter."

The author of a paper read at the Institution of Surveyors on November 22nd, 1869, considers Italian rye-grass to be the staple sewage crop, and that it will produce, under proper cultivation, ten crops, averaging nine to ten tons each per acre, in one season, by the application of a sufficient quantity of sewage, and that the sewage of 35 to 40 persons per acre is a sufficient average for a term

\* "Treatment and Utilisation of Sewage," by W. H. Corfield, p. 232. London: Macmillan and Co., 1871.

† "Handbook of Sewage Utilisation," by U. R. Burke, M.A., p. 44. London: E. and F. N. Spon, 1873.

‡ W. H. Corfield, "Utilisation of Sewage," pp. 243, 244.

§ Mr. Hope, *vide* Corfield, "Utilisation of Sewage," p. 254.

of years. I understand that Lieutenant-Colonel M. W. Bernard's observations on the Curragh irrigation farm coincide with Mr. Hope's experience as to the advantage of cultivating Italian rye-grass as a sewage crop.

The Earl of Essex, who has applied the Watford sewage for irrigation, gave evidence before a parliamentary committee (Dr. Brady's) as to the value of sewage irrigation. He states that the increased value of the land, after deducting the price of the sewage, was £2 7s. 6d. per acre clear; it exceeded the rent of the ground. He considers that 80,000 tons are sufficient for 50 acres of land, and he finds that it is stored up as it were in the soil; "put it on when you like it remains in the soil till it is wanted by the plants." Four or five crops of rye-grass are produced in the season, and "I can fatten nearly two bullocks to the acre, besides seven or eight horses, and as many pigs as I have room for."

Doubtless the Board of Guardians of Naas Union would desire to avoid the responsibility of purchasing and maintaining an irrigation farm if a less onerous arrangement can be made. It is not uncommon in England for the sanitary authorities to give a concession or lease of the sewage to farmers or other undertakers, and if such a plan can be worked here it would perhaps be most satisfactory to ratepayers and guardians. The manurial value of town sewage in bulk ranges in certain districts in England and Scotland from ninepence a-year upwards for each head of the population, and there is no reason to doubt, *ceteris paribus*, that the sewage of Naas is of some value.

At Romford, a small town in Essex, the sewage is delivered on to a farm in the neighbourhood at a rent of 2s. per head of the population, and the farmer "agrees to bear the board harmless in respect of all actions for any damages or nuisances."

As a general summary to this division of my report, I have to recommend, 1st—That the sewage be discharged into depositing tanks, from which solid precipitates can be removed from time to time. 2nd—That the effluent liquid from the tanks be purified by applying it to irrigate land. 3rd—That the Board of Guardians shall either purchase land for irrigating, or sell the sewage to farmers. 4th—That the solid precipitates shall be treated so as to render them inodorous, inoffensive, and as far as possible remunerative.

I regret that I am not yet prepared to state an approximate estimate of the expense of the works necessary to perfect the sewerage; the sewers alone would probably cost £2,500.

### CORRESPONDENCE.

#### OUR ROUND TOWERS—PAGAN OR CHRISTIAN?

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—There is in your last number, under the above heading, a letter from a correspondent, which deserves a word of notice from me. It is on the subject of my book on the Round Towers, and bears the name of S. P. Oliver. This letter, it appears, was suggested by the editorial review of the Round Tower essay lately published in successive numbers of the *IRISH BUILDER*. Of that review I have naught to say but that it is written with scholarly ability and manifest literary experience. How far it succeeded in meeting the arguments of the essay is another thing.

But your correspondent, leaving the line of argument and of proof, seeks to throw discredit on the theory by quoting an unreliable and ridiculous story about oscillating towers from a book of travels "through the Caucasus and the Interior of Persia." If he has nothing to say of the Antiquities of Ireland, but that they may be illustrated by tales from that quarter, I fear he will not throw much light on the subject. Ancient names, philology, early ecclesiastical usages, symbolical architecture, are of no account.

I have stated in the essay—and he does not venture to contradict the assertion—that in the Irish-speaking districts of Ireland the Round Tower is in the native language, called *cuilceach* or *cuiltheach*, that is, a reed-house, from *cuit*, a reed, and *each*, a house. If he should visit the country about Ardmore, about Cloyne, about Kenseigh, about Rattoo, &c., where Round Towers exist, he will find that this is the case; and, if he knows the old tongue, he will perceive that this word is pronounced by the people with unmistakable uniformity and accuracy. But it may be

with him, as with other authorities on Irish antiquities, that he is utterly ignorant of the language, and that he could as easily carry a Round Tower on his back, as pronounce the name *cuilceach*.

He does not think that a reed could be represented in a structure of solid stone and mortar. Why, it is even represented in the more solid materials of silver and bronze when, as it often happens, the figure or image of St. John the Baptist is composed of these metals. The reed is there in his hand. The architects of an early epoch looked to Nature for their models, and the selection of the water-reed as the archetype of the isolated baptistery of the fourth, fifth, and sixth centuries of Christianity, is in perfect accordance with the ideas of the age. In all ages the art of the builder has had the courage to aim at this imitation. If your correspondent will only pay a visit to Sir Philip Crampton's fountain in Dublin, he will find placed on it a solid cone, 20 ft. high, representing a huge water-plant; and, on reflection, he may find the analogy to be very striking. Will he deny that the reed is the emblem of St. John the Baptist? If so, he will be enlightened by a visit to any respectable print or picture shop in the nearest large town. How accurately and faithfully does the ancient name of the Round Tower in the native language supply the key to its origin and use! The reed-house is an emblem of St. John the Baptist, who was the patron and prototype of the ancient baptistery. How many persons in this country had ever heard or read of these separate baptisteries before the present theory was published? Was your correspondent aware that such buildings existed in the early ages of Christianity? Was he aware that an ancient rubric of the Church recommended that, when convenient, an image of St. John baptising Christ would be placed on the baptistery, and that this very image is on the Round Tower of Brechin? Can he quote a single instance in which that image was on any building not connected with baptism? As ancient ecclesiastical writers tell us, and as I have stated at length in the Essay, these baptisteries were turret-shaped buildings, sometimes round, sometimes octagonal, and sometimes hexagonal. Your correspondent can see a large hexagonal baptismal font in the new Protestant Cathedral of Cork, copied from an old model on the Continent; and if he continues his journey to Keneigh, near Bandon, he will find that the Round Tower or reed-house there is also hexagonal.

I would be occupying too much of your space with all the other details of the reed-house: its invariable position with regard to the ancient church, and that church invariably an early Episcopal one, the four windows, the descent into the lower compartment, the peculiar architecture of the primitive Christian period in Ireland, all which shew that the Round Tower exhibits the character of the ancient baptistery, and that no other theory on the subject can stand the test of a critical dissection. No other, surely, can give any reason for the form, and shape, and position, and name of the Round Tower. —Very truly yours,

RICHARD SMIDDY,  
Author of the Essay.  
Aghada, Rostellan, Co. Cork,  
August 8, 1875.

#### "PUN."

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—My attention has been called this day to your witty remarks upon my report on the Royal Harbours. The word "pun" is in very general use among engineers, and if you will refer to the Imperial Dictionary you will see that one of its meanings is to puddle (i.e., to make thick or close). If you wish to be erudite and hunt up the word to its root, you will probably find it in the Anglo-Saxon word "punian," to knock about.

Our tempers are, I hope, as good as that of my concrete, which is saying a good deal for both of us, and need not be improved by punning, or pounding, or podging, which

very much improves the "temper" of cement concrete. Punning, as you practise the art, is a harmless amusement, and a good corrective of bile.—Faithfully yours,

R. MANNING, M. Inst. C.E.

Office of Public Works,  
August 13th, 1875.

#### "THE ROYAL COLLEGE OF SURGEONS' COMPETITION."

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—From the article which appeared in your issue of the 1st inst. with regard to the late competition at the Royal College of Surgeons of Ireland, I think you must, in all fairness to the president and council of the college and to me, publish what I may have to say on the matter. It is a long statement, but those who take an interest in the matter may, on reading it, form a very different opinion to that which they may now hold.

Firstly, I must give a most unqualified denial to the statement "that I ever told, or led anyone to suppose, that I was not going to enter into the competition." Why should I be debarred from entering into it? I do not receive any salary.

The facts of the case are these: In or about October, 1872, the council of the college advertised for an architect, in the room of the late Mr. Darley. In November there was an election. Eight applicants were in the field, and I was fortunate enough to be the successful candidate. Some time after I received instructions to prepare plans, &c., for enlarging the museum and library. This I accordingly did, and attended on several occasions to explain same. The council delayed a long time coming to a determination, as they were undecided as to the best place for the addition to be made. After some time had elapsed I received instructions to prepare plans, &c., for altering the place in another way. This I did, and both sets of plans were before the council for a lengthened period (they being hung up on the walls of the council room). After their remaining there for a month or so, I got permission to remove them, and I did not hear anything more about the plans, &c., till I saw the advertisement asking for "plans in competition." I then wrote to the council, asking in what position I, as their architect, stood with regard to the competition? The reply was, that "no matter whose plan was selected, I should have the carrying out of it;" otherwise I would not have sent in plans, as I would not have been treated fairly. Many architects called and wrote to the registrar, asking where it was proposed to make the addition, &c. This was the very thing the council wanted to know themselves, therefore the registrar could give no reply, as he did not know.

The ground covered by the college is of large extent, and would take some time to measure; therefore some of the architects thought that, on payment of a fee, they ought to be supplied with plans of the building as it stood, and wrote to that effect. I received an order from the council that, as I had measured and plotted the whole thing, I was to supply them with a certain number of copies, and that anyone asking for same should receive them on payment of £2 2s. I sent tracings to the registrar, and told him if they did not afford sufficient information with regard to the section, &c., that I would be most happy to give any information to anyone on their calling at my office. Mr. Drew wrote some queries to the registrar, and he asked me to reply; and I at that time, thinking Mr. Drew was a personal friend of mine, called on him (foolishly, as it turns out) and gave him any information he required; but neither on that occasion nor on any other did I say to him or to anyone else that I was not going to send in plans.

In due time the plans were sent in, and each architect had an opportunity of explaining what he proposed. My plans, being arranged in alphabetical order, came last, and they were mounted copies of the ones I

furnished in 1872, and which, after a lengthened consideration, the council adopted, and forwarded me a cheque for the amount of the premium, on the condition that said plan should be carried out for the sum named in the competition, viz., \$5,000. Previous to receiving the premium, I was asked by a member of the council would the £100 merge into the commission. I replied in the negative, and the council were unanimous in paying the premium and commission, and instructed me to receive estimates for carrying out the plans, which I did, and out of seven Dublin builders' estimates there was only one over the abovenamed sum, and the remaining six averaged £4,414, and there being only a difference of £148 between three of the estimates.

Now, under such circumstances, the council of the Royal College of Surgeons, in returning the plans to each architect, could not make any reply, as they were waiting to see the result of the estimates (one of the conditions of the competition being that the cost of the building should not exceed \$5,000), and they only received the estimates last week.

As for myself, I am sorry that any brother professional should seek to place me in an unpleasant position, without first having the manliness to see that he was not labouring under some mistake. If any competitor thought he was not fairly treated, why not ask the council of the college to hear him? instead of, in the most unkind manner, without any warning, placing them and their architect (in the face of the readers of the IRISH BUILDER) as the most thorough deceivers.—I remain, sir, yours, &c.,

WILLIAM J. SYMES, Archt.

197 Great Brunswick-street, Dublin,  
10th August, 1875.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I read with much interest the article on this subject which appeared in your last issue, and was glad to find that the views it expressed quite coincided with those which I had already conveyed to the secretary of council, on the 8th June, when acknowledging the receipt of my drawings. The secretary, after a lapse of two months, did favour me with an official intimation of the council's decision, and of the return of my drawings, which I received a fortnight later.

I did not see the plans submitted by the other competitors, but from the opinions expressed to me by architects who did, I concluded that Mr. Symes' design had little, if anything, to recommend it for adoption.

That the council, in first allowing their official architect to compete, and afterwards in adopting his design, were actuated by a desire to merge in their own architect's commission the £100 premium, which their advertisement seemed to offer for competition to outside architects, or to award the premium to Mr. Symes as an equivalent for the plans he was commissioned to prepare, prior to the competition, but which were not acted on; and at the same time to obtain the benefit of the ideas embodied in the designs of the other architects competing, I should not like to say, but their course of proceeding is certainly open to such a construction. I, for one, would not have competed had I not been informed, on the most reliable authority, that Mr. Symes himself had conveyed the impression that he was not interested in the competition; and a fact which seemed to me to confirm this was, that the only plans of the existing buildings which competitors could obtain to work from, were supplied in the form of tracings by Mr. Symes—as the official architect, I was told—at a charge of two guineas per set.—Your obedient servant,

W. H. LYNN.  
Belfast, August 12th, 1875.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Having observed in your issue of the 1st inst. your remarks in reference to the College of Surgeons' competition, I beg to express my full concurrence in the same, and

to add my testimony to that of your informant to the fact that I was induced to contribute a design, on the understanding that the architect to the college was *not* to be a competitor; that he, having previously made plans for the purpose, and having failed to satisfy the council with his proposals, they had decided to invite the profession to compete, and to pay £100 to the author of the design which they thought best answered their requirements, and to employ their own architect to have it carried out.

Under these circumstances it was at least remarkable to find that the architect to the college was admitted a competitor, with no less than three designs, and that the competition closed with the council's announcement in the newspapers that the designs contributed by their own architect had been accepted as the best, and the premium of £100 had been awarded to him!

Judgment as to the merits of a design is, after all, I suppose, only a matter of opinion; but even supposing the decision of the council to have been correct in this case, the competitors have, I think, reasonable cause for objection to the course taken by the council, in having induced them to spend time, and thought, and money in their service, on the implied understanding that their own architect was *not* to be a competitor, and would have no interest in the matter more than to carry out the design which might be selected for adoption.

Had the council stated as distinctly as the contrary was implied, that their own architect would be a competitor, and that every disposition would be exercised by the council in his favour, I think I am not wrong in believing that not one member of the profession would have taken any trouble in the matter.

With the facts of the case in view, it is difficult to understand how a number of gentlemen, individually beyond reproach, could, even under the cloak of the whole council, feel justified in adopting a course which is so plainly in opposition to fairness and propriety.—Your obedient servant,

THOMAS TURNER.

The Castle, Belfast,  
18th August, 1875.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In an article on the College of Surgeons' competition, that appeared in the last number of your valuable and influential journal, it was stated that none of the competitors received any official intimation of the decision arrived at by the council. For our part, whilst we cannot but complain of the manner in which we, along with the rest of the *bonâ fide* competitors, have been treated, we cannot accuse the council or officers of any discourtesy, having received a polite intimation of the result of the competition from the secretary, previous to our plans being returned to us.—We are, sir, yours faithfully,

T. H. LONGFIELD,  
J. L. ROBINSON.

198 Great Brunswick-street,  
Dublin, Aug. 18, 1875.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—It has been intimated to me that Mr. William Symes, architect to the College of Surgeons, considers that your article on the recent competition reflects on him personally, and that I, having supplied you with a statement on which it was founded, am responsible for it. I am willing to be responsible for every statement made in your article, and to endorse (as I believe most architects would) every word of your comment thereon; but the thing most remote from my mind is to reflect on Mr. Symes, whose character and action in the matter of the competition is not, I submit, questioned. Mr. Symes undoubtedly conveyed to me, in the precise words stated in your article, at an early stage, that he was not to be a competitor. If subsequently he found that he might be permitted to be one, no architect would blame him for entering on the competi-

tion and re-obtaining possession of his proper position with the college. I may say that it may now be regretted that he did not think it necessary to make his change of intention known; but the dissatisfaction of competitors is wholly with the college in its official character, which could not escape imputations of unfairness in permitting its own architect to be a competitor and going through, after all, what may be believed to be a sham in professing to award the prize to him, and then reverting to his original plan (as I am informed has been done).

There is nothing clearer than that there is no spice of personality in criticising the official action of a corporate body. You, Mr. Editor, indulge in a similar exercise with another corporation pretty liberally. All of us competitors know personally, and esteem and respect most of the individual members of the council and the officials of the college, but no personality is involved in your or my remarks on this subject.

The competitors for a prize of £100 will not readily withdraw the charge that the college has acted unfairly, inconsiderately, and uncourtously towards the architects who responded to their invitation. In permitting their own architect to be a competitor at all, by no possibility could a fair or impartial complexion be given to the transaction. It is fairly assumed that their official would have advantage and opportunity not open to others, in possessing the ear of the council, knowing the views of its influential members, and, with facilities (which others would not have) for making himself acquainted with the different schemes, an important advantage, be in a position to exhibit the transcendent advantages of his plan, as against the disadvantages of others.

I would not for a moment impute that Mr. William Symes would take an unfair advantage of his position; but the bare fact of the official architect to a corporation being a competitor, in such a case, is open to the imputations above stated, and the conditions of the competition could not, I repeat, be fair.

If the college has reverted to the original plan of its own architect, how can it get rid of the charge of having inconsiderately trifled with the time of professional men, whose time is individually quite as valuable to them as that of members of the council of the college to them? Can any possible ingenuity make the bare facts capable of any other view to outsiders than that a bait of £100 has been dangled before the eyes of architects, and used so as to obtain *gratuitously* most valuable information, by which the council has, by comparison and every possible hint that could be accorded, matured their views as to what they ought to build?

Is it unreasonable for any person to doubt that even the award of £100 to Mr. Symes for his plan has been a really *bonâ fide* one? I can assure you that several competitors as well as myself would require assurance as to the fact that Mr. Symes is to receive his full professional fees of 5 per cent. on the works to be carried out, *plus* £100 honorarium, before they would feel satisfied that the offer of a prize has not been virtually a sham. Even being assured that the prize or no part of it is to merge into the proper fees of the architect to the college, nothing could give the award a wholly impartial aspect to the public.

I endorse your sentiment that it was inconsiderate, and leaving an opening for a much worse imputation, to retain designs so long; and I will add that it was both inconsiderate and discourteous to take up the time of gentlemen in dancing attendance on the council, affording it valuable information gratuitously, and finally giving no intimation of its decision or acknowledgment of the service rendered, but that of 'shooting the rubbish' (and that I believe only after remonstrance) at the several architects' hall doors.

So far from any professional jealousy or rivalry actuating myself or any competitor whose views I can answer for, it was wholly out of consideration for Mr. Symes' profes-

sional interest and his standing with the college, that enquiry was made as to a *sine qua non* before competing that he was not being competed with.

I venture to say with confidence—knowing the honourable professional feeling of etiquette of the gentlemen who competed—that, had they known they were entering into competition with the official architect of the college, no prize would have tempted one of them to interfere with him, and he would have been left in undisturbed possession of his proper field. The college has, of course, a right to conduct its own business after its own fashion; but the opinion of architects who have some experience of such transactions as this would be, that it acted both unwisely for its own interests and inconsiderately in even temporarily questioning the competency of its own perfectly competent architect, and taking recourse to fishing in the troubled waters of architectural competition.

Will Mr. Symes, whom I not only esteem professionally, but to whom I am personally indebted for disinterested service kindly rendered me, accept my full assurance of desiring in no way to reflect on his character for honourable and professional dealing.—I am, sir, yours obediently.

THOMAS DREW, F.R.I.B.A.

[We cordially give insertion to the foregoing letters, which we have placed in the order in which they came to hand. Whilst we refrain from making any further observations on the matter discussed so far, we do not consider we are departing from our position as a professional journal in taking upon ourselves to suggest that the college should adopt the *only* course now open to it, namely, to confer a prize upon the author of whichever plan (not being that of its own architect) found most favour with the majority of the council, and duly influenced in its selection by the disinterested advice of its own architect, on professional merits. Our journal exists for the interest of the profession and the country—not for individual interests. We are happy at all times to open its columns for the free discussion of matters in which the honour of architects is concerned. In the present instance there has been misunderstanding, and, as we remarked to one of the parties concerned—"one story is good until another is told." We have again to apologise for not including with present number Mr. Drew's design for the college.—ED. I. B.]

[Mr. Manning,\* if not a cardinal authority on the roots of words, is doubtless well qualified to express an opinion on the art of "punning." Give him his due, he would not, we opine, in private or on pier-head, harbour a bad word, pick a quarrel, or punch a stone for the purpose of pounding a workman as a punishment for perishing his mortar. His motto is to "strike but hear." Like all sensible engineers, he is a deep-designing fellow, and though not given to curse his work like bad workmen, he has no objection to a blasting operation. We have no doubt he minds his P's, and in doing so he has no occasion for looking after his Q's. With mind as well as mortar, good temper is a necessity, and for engineers betimes, *patience passe science*.

If you would "pun" well, pin well 'neath your footings  
In harbours, docks, quay walls, and railway cuttings.

This is original rhyme, but the reason, which is sound, is as old as dams and cofferdams, Punic faith and Pundit philosophy.—ED. I. B.]

\* See page 230.



## FROM COLERAINE.

A DEPUTATION from the Hon. the Irish Society visited Coleraine on Thursday, where they were cordially received. The governor (Sir Sydney Hedley Waterlow, Bt., M.P.) informed the Town Commissioners that the deputation had that day made a grant of £500 annually for five years to provide their town with water; also, that they had transferred to the commissioners a valuable plot of ground for the purpose of supplying market accommodation. Aid was also promised towards any feasible plan for the improvement of the navigation of the Bann.

## THE SEWERAGE OF NAAS.

THE committee appointed to consider Mr. Brett's report on the above, inform the board of guardians that they "are of opinion that the system he proposes would be most efficient, but we regret we cannot recommend its adoption, as it would entail such an expenditure of money and consequent taxation, as the town of Naas could not support."

## NUISANCE AND OBSTRUCTION.

## NORTHERN POLICE COURT.

PETER M'Cabe, butcher, 6 Talbot-street, was fined £5 for having on the 29th ult. used a building at the rear of his house as a slaughter-house, same not being duly licensed. [We think there are many more in the vicinity that should be looked after.]

On Friday a butcher named M'Cabe, in North Earl-street (along with other shopkeepers), was summoned for having a sunshade projecting over the footway, and only five feet above same. Several gentlemen had broken their hats against it. Mr. C. J. O'Donel (the sitting magistrate) said that, strictly speaking, every sunshade that projected over the footpath was illegal and contrary to the letter of the act of parliament. M'Cabe said that as soon as the obstruction was brought under his notice he had it removed. The cases were dismissed, with an intimation that in future fines would be imposed. [In spite of the caution given, M'Cabe's sunshade was in the same obstructive position on the following day until near one o'clock, when we drew the attention of acting sergeant 84 C to it.—Ed. I.B.]

## SANITARY AND OTHER NOTES.

In the Corporation, at a late special meeting, the chairman, Alderman Sir James Mackey, said he believed the steps he had suggested to be taken for improving the drainage of Mountjoy-square and its vicinity were being carried out. The sewers in the neighbourhood of the square had been in a very defective state, and considerable sickness had taken place in the neighbourhood. No improvement was more needed than that in question, and he believed he might say that when the work was done it would be found satisfactory. Mr. Lalor complained that a direction of the council, sanctioning a recommendation of No. 1 Committee to have a lavatory erected on the Lots near Strand-street and Abbey-street, had not been carried out. The necessity for such a lavatory was most pressing; yet it appeared that in consequence of a memorial of six persons residing in Henry-street the work had been abandoned. He considered this monstrous, and gave notice that he would call attention to the subject at the next meeting.

A complaint having been made by the authorities of Mercer's Hospital of the existence of a dairy-yard adjoining it, the smell from the manure heaps in which entered the hospital windows, the matter was referred to the Public Health Committee. Their executive sanitary officer, Mr. Boyle, was directed to inquire into the matter, and he did so, and reported that he found in the yard seventy cows, four pigs, and four horses, and about thirty tons of manure; that the yard was fairly clean, and that there was no cleaner yard in Dublin, and that subsequently the cows were removed to grass. He also stated that legal proceedings had been taken against the owner for having the manure heaps, and an order was made to remove the accumulations every second day. As to the animals, he thought the law did not empower their compulsory removal, though the cubic space allotted to each of them was but 240 ft. on an average. While in

London the minimum cubic space allowed by law is 600 ft., in Dublin, he states, the average in use is 268 ft. Mr. Boyle states that this is not the worst case, for there are sheds next two other hospitals—one of which is a fever hospital—in which 470 cattle are housed, with only 230 cubic ft. of space to each. Upon reading this report, the Public Health Committee, at their meeting on the 23rd ult., ordered that the owner of the dairy-yard adjoining Mercer's Hospital should be again summoned, and that the report of Mr. Boyle should be forwarded to the Local Government Board.

KINGSTOWN.—At the monthly meeting of the commissioners, Mr. Doyle, surveyor, was directed to order lamps on the East Pier promenade to be regularly lighted each evening. His report was read, and showed that the daily consumption of Vartny water in the Kingstown township during the month of July had been 410,000 gallons; also that about 800 yards of water mains had been laid down in the recently-added portion of the township. The chairman indicated to the surveyor that it would be soon necessary to increase his staff so as to carry out the township work efficiently in this new portion. Mr. Reilly introduced the subject of obtaining a town hall. A rate should, he thought, be struck for this purpose. Mr. Barrett said that at least £8,000 would be required for the purpose. A protest was passed against a surcharge made by the public auditor against five commissioners. The mortality in Kingstown during July was stated by the clerk to have been 11 per 1,000 of the inhabitants. Plans for contemplated additions to the market were exhibited. A report was read stating that several sanitary prosecutions had been carried out during last month, and orders for the abatement of nuisances complained of obtained from the police magistrates.

## HOME AND FOREIGN NOTES.

We learn that steps are about being taken for the preservation of the Round Tower at Clones, County Monaghan, a notice of which appeared in our last issue.

The Newry Gas Company announce a reduction of 5d. per 1,000 feet in the price of their gas from 1st of October next. "This is a step in the 'light' direction."

INK FOR PHOTO-LITHOGRAPHY.—The best ink for drawings intended to be reproduced by photo-lithography is Indian ink, used as black as possible. Any medium which can be introduced to lessen its natural gloss without impairing its freedom of working is an advantage, and should be employed, together with a little ox-gall, which makes it run more freely. Lampblack would be preferable to Indian ink, on account of its dead surface, were it not for the objection that it does not flow freely from the pen. It should, however, be used with a brush for all fields of black, such as the sections of mouldings or walls. In making a drawing for the photo-lithographic process, care should be taken to maintain the same shade of ink throughout, keeping all lines firm and distinct, and the less lines used the better, as there is no tone in a photo-lithograph excepting that which is obtainable by quantity and thickness of line. Above all, let the draughtsman never forget the old master's advice, to mix brains with the ink. As to the material on which the drawings should be made, London board is the best, chiefly on account of its smooth and white surface, but also because it does not buckle; so that the photographer can the more easily keep the drawing in one focus. "Hot-pressed" is the next best paper, and in no case should any other than white be used. All pencil and dirty marks should be removed, while no wash of any kind is permissible. The drawing should be about twice the size of the intended reproduction. Any pen may be used. In addition to these limits we may add that we have found Indian ink mixed with ordinary black writing ink excellent for the purpose.

THE DUBLIN MAIN DRAINAGE.—The Government have made a reasonable, or, more properly, a handsome, proposal to the Dublin Corporation with reference to the main drainage of the city. The Dublin Corporation have asked the Treasury for support for a bill to increase their borrowing powers. The Government having some doubts about the solvency of the Dublin Corporation, have required that it shall be represented on the Main Drainage Committee. This, after much objecting and disputation, the Corporation has agreed to. We think the Government are taking a very wrong course in permitting any compromise in this matter. The Main Drainage Committee have, up to the present, failed in every attempt to carry out any main drainage scheme; and it being quite evident that the body is incom-

petent, we think it is the duty of the Government to supersede the authority as at present constituted. A body which some few years ago agreed that the proposed works could not be carried out for less than £900,000, and now considers that the same works can be accomplished for £450,000 or £500,000, is suspiciously ignorant of its duty, or else worse than ignorant. Either the works cannot be properly constructed for less than £900,000 and the present plan is inefficient, or else the works could have been done for £450,000, as at present proposed, and the former proposal was a gigantic swindle. We are not sufficiently informed as to details to be able to decide which alternative is the correct one; but we leave the dilemma to be solved by the Dublin Corporation.—*Sanitary Record*.

Hans Christian Andersen, whose delightful fairy tales have made his name a household word throughout Europe and America, died on Wednesday at Copenhagen. Only a few months ago a large company of the friends and admirers of the veteran story-teller met at Copenhagen to celebrate the seventieth anniversary of his birth. At that time, though cheerful and happy, his health was but weak, and death has probably not come as a surprise to those who knew him. Andersen was born at Odense, on 2nd April, 1805. His father was a poor shoemaker, and all his early schooling was got at a charitable institution, from which he was taken when nine years old. His father dying, he worked for some years in a manufactory, and helped to support his widowed mother. Having learned to read, he devoured with avidity all the books of plays on which he could lay hands, and forming the resolution to become an actor, he attempted, but failed, to get an engagement at the Copenhagen Theatre. Poor young Hans was about this time reduced to great straits, almost to want. Several tragedies he wrote failed to make any impression. At length a friend appeared in the person of a Councillor Collin, who procured his admission to a Government gymnasium, and afterwards assisted him at college. Soon his writings began to attract attention, and in 1844 he was invited to the Court of Denmark, and shortly afterwards received an annuity from the Royal exchequer, which allowed him freely to follow the bent of his genius. Since then he has travelled much, and has visited England. Among the best known of his numerous works are his "Tales from Jutland," published in 1859; "The Sandhills of Jutland," 1860; "Tales for Children," 1861; "The Wild Swans," and "The Zee Maiden," 1863; and "The Story of my Life." His last volume of fairy tales, "Nys Eventyr og Historier," was published in 1872. His writings have been translated into most European languages, mostly through the medium of the German. Andersen is understood to have been of most lovable personal character, as indeed his works sufficiently bear witness.

## TO CORRESPONDENTS.

PLURALITY OF APPOINTMENT.—A correspondent writes to us questioning the legality of Mr. James Boyle, C.E. (who is the secretary to the Public Health Committee, and also sanitary officer), taking on to supply plans to the parties interested in the Drumcondra sewerage. Our correspondent says that Mr. Boyle has already "more duties in hand than he can or will attend to, and for which he is amply paid out of the city rates."

THE O'CONNELL MONUMENT.—A report has reached us that an effort will be made to introduce an inscription on the O'Connell Monument never intended in the original design, but now intended for the glorification of a party and event of a too recent occurrence to need more particular mention. We trust that there is no truth in the rumour. The monument needs no further inscription than the date of birth and death, and the simple word "O'Connell." A subsidiary inscription of the nature indicated would be an outrage, and should not be tolerated for a moment.

A SURVEYOR.—We will not lose sight of the matter.

AN ARTISAN.—The date on the banner is the date of the charter granted to the original city guild of the trade in question.

THE TRIBUTARIES OF THE LIFFEY.—There were several ancient tributaries, but the modern drainage of Dublin has absorbed them. The Tolka and the Dodder, on the borders of the city, though far from being pure, will be absorbed to some extent near their outfall before many years. The city extent of the Poddle is nothing more than a large sewer; and the Bradoque, which empties itself near Essex Bridge, is a sewer of the city, though an open stream outside it. The Camac and the other tributaries further up the river are getting more and more polluted every year. The darling Main Drainage scheme will not lead to the purification of these streams.

J. N. G.—Your communication was late for this issue. Perhaps the architect could supply a pen-and-ink drawing of the building you refer to.

T. C.—Your subscription has not been paid. M. B.—The report of meeting of Drogheda burgesses, as given in the local *Conservative*, is deeply interesting. We hope some of our city magnates have perused it. Thanks. Several articles in type are held over for want of space. Some correspondence relating to the competition for globe-house at Maryborough (an advertisement for which appeared in our issue of 1st inst.) will also receive due attention. Perhaps a few more of the competitors would favour us with their notions upon it.

Received.—B. A.—A. A. I.—Sanitas.—A Citizen.—M. D.—Rex (London).—Mountjoy.—A Bricklayer (Kingstown).—C. G.—R. E.

## NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

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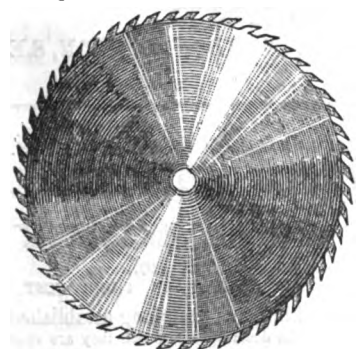
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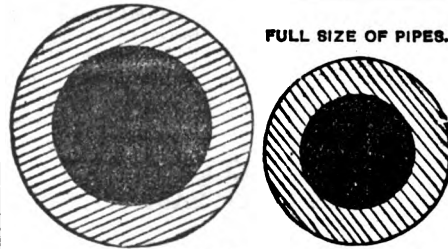
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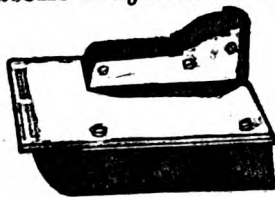
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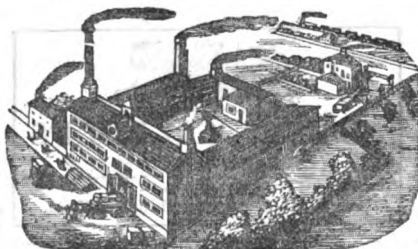
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# The Irish Builder.

VOL. XVII.—No. 377.

## Dry Rot in Timber.\*

### FIRST NOTICE.

OR the last century and upwards the subject of "Dry Rot" in timber has attracted considerable attention, but very erroneous opinions have been expressed upon the cause and the cure, and many failures have resulted—the dry rot or fungus still continuing as rampant as ever. We question very much, with all our sanitary knowledge at the present time, if dry rot in buildings is not more prevalent now than in the last century. The method of construction adopted and the materials used by our modern class of cheap speculative builders, i.e., the "Jerry" tribe, have aided more in the growth and prevalence of dry rot than any other cause we know of. Green or unseasoned timber, loamy mortar, sea sand, roadside scrapings (used in the rough plastering of the walls of cheap houses), bad drainage, or no drainage at all, want of ventilation—these are a few of the causes that contribute in our dwellings to the growth and spread of dry rot in the floors, roofs, and door and window trimmings.

The volume under notice will be found a serviceable one, for it contains the condensed information to be found in various other works and publications bearing upon the subject, extending from the early part of the last century to the present time. In addition to the treatment of dry rot *per se*, Mr. Britton furnishes a series of chapters on the nature and properties of timber, the gradual rise and development of dry rot; on felling timber; on the different natural and artificial methods of seasoning—the latter including hot and cold air, fresh and salt water, vapour, smoke, boiling, charring, scorching, and other methods of seasoning timber. We have also a description of the seasoning of timber by patent processes, some of which are now in use, and the most recent methods adopted for preventing dry rot in modern houses.

Not the least serviceable and useful portions of Mr. Britton's volume are the last five chapters, dealing with the preservation of wooden bridges, jetties, piles, harbour works, &c., from the ravages of the *teredo navalis* and other sea worms; on the destruction of woodwork in hot climates by the *termite* or white ant, and other insects; on the causes of decay in furniture, wood carvings, &c., and the means of preventing and remedying the effects of such decay. The subject of dry rot in timber and that of decay produced by the action of insects presents a most absorbing and interesting field for observation and study. It concerns every intelligent member of society, as well as the professional architect and engineer. To those, however, who desire merely useful and interesting information concerning the "freaks of the fungi" or dry rot, and the

ravages of the wood-boring insects, Mr. Britton's volume will afford them profitable, aye and even amusing information.

Before proceeding further, we will give an extract from the chapter "On the Gradual Rise and Development of Dry Rot":—"Dry rot in timber derives its name from the effect produced, and not from the cause; it is so-called in opposition to wet rot, which is properly demonstrated, as this exists only in damp situations, and is applied to the decomposition which takes place in timber containing sap; but, although the dry rot is usually generated in moisture, in some cases it will flourish independent of extraneous humidity. Dry rot differs from wet rot in this respect, that the former takes place only when the wood is dead, whereas the latter may begin when the tree is standing." "Wet rots are composed of porous fibre running from the rot into the trunk of the tree. This rot is of a brown colour, and has an offensive smell. The evil is often found with white spots, the latter a watery substance, when it has yellow flames, it is very dangerous."

Passing over the rather occult subject of the generation of fungus, whether of spontaneous production, as held by some naturalists, or produced by seed, we will come to a description of its appearances. "If dry rot shows itself in a damp closet or pantry, the inside of the china or delft lying there will be coated with a mould or a fine powder like brickdust. This excessively fine powder is no other than unaccountable myriads of the reproductive spores or *seeds* of the fungus; they are red in colour, and are produced on the surface of the fungus in millions. Certain privileged cells on the face of the fungus are furnished each with four minute joints at their apex, each four bearing a single brick-red egg-shaped spore, so that the fruit is spread over the surface of the fungus in groups of fours. To see the form of these spores the highest powers of the microscope are required, and then they can only be viewed as transparent objects. If these excessively minute bodies be allowed to fall on wet flannel, damp blotting paper, or wet wood, they immediately germinate and proceed to reproduce the parent fungus. The red skin of the spores cracks at both ends, and fine mycelial filaments are sent out; this is the 'mould' spawn or mycelium from which the new fungus (under favourable conditions of continued moisture) appears."

Mr. Britton describes at great length the various appearances of dry rot and its development in various articles and situations and quotes from preceding and contemporary authors their experiences. Many of these notices are very interesting. Mr. M'William, whose work on Dry Rot is quoted by Mr. Britton, observes:—"If fungi proceed from the slime in the fissures of the earth, they are generally very ramous, having round fibres shooting in every direction. If they arise from the roots of trees their first appearance is something like hoar frost, but they soon assume the mushroom shape." Hence it appears, says Mr. Britton, that we frequently build on spots of ground which contain the fundamental principle of the disease, and that we are sometimes foiled in our endeavours to destroy the fungus by the admission of air. And he says:—"When workmen are employed in buildings which contain dry rot, and when they are working

on ground which contains the symptoms of this disease, their health is affected. A London builder informs us, that a few years since, while building some houses at Hampstead, his men were never well; he afterwards ascertained that the ground was affected with rot, and that within one year after the house was erected, all the basement floor was in a state of premature decay. Sir Robert Smirke, architect, remarked in 1835, that he had noticed 'there are certain situations in which dry rot prevails remarkably.' That is a truism, but it would have been better had Sir Robert Smirke been able to tell his brother professionals where were the certain situations."

It is a question whether architects at the present day should not be held answerable for the development of dry rot in new buildings within a certain stated time after their erection. According to an architect's specification—an architect who values his character—the materials are specified to be sound and well seasoned, and all of the best kind, and the work is to be done in a proper and workmanlike manner. Well, if the foundations, like the drainage, is a mere make-believe—if the work is scamped, as it too often is, and the materials of the most inferior description—what else can be expected but general rottenness and filth, aided by foul air, for the want of any system of ventilation? The time will come when architects and builders will be held responsible for their work to a greater extent than they are at present; but before they can be justly held responsible, the law needs an amendment. Honest architects, with the aid of a proper building act, and a properly-framed specification, could render dry rot impossible in their new buildings, provided at the same time that the sanitary authorities honestly performed their duties. There is a certain class of buildings now being erected that should never be permitted, and a certain class of unprincipled builders that should be stamped out like vermin or "dry rot."

In further description of the appearance of dry rot, Mr. Britton writes:—"Dry rot externally first makes its appearance as a mildew, or rather delicate white vegetation that looks like such. The next step is a collecting together of the fibres of the vegetation into a more decided form, somewhat like hoar frost, after which it speedily assumes the leathery, compact character of the fungus, forming into leaves, spreading rapidly in all directions, and over all materials, and frequently ascending the walls to a considerable height, the colour variable—white, greyish white, and violet, light or decided brown, &c."

Again:—"In the section of a piece of wood attacked by dry rot, a microscope reveals minute white threads, spreading and ramifying throughout its substance; these interlace and become matted together into a white cottony texture resembling lint, which effuses itself over the surface of the timber; then in the centre of each a considerable mass of gelatinous substance forms, which becomes gradually of a yellow, tawny hue, and wrinkled, sinuated porous consistence, shedding a red powder (the spores) upon a white down, this is the resupinate pileus, the hymenium being upwards, of *marulius lachrymans*, in its perfect and matured state. Long before it attains to this the whole interior wood on which it is situated has perished,

\* "A Treatise on the Origin, Progress, Prevention, and Cure of Dry Rot in Timber," &c. By Thomas Allen Britton, late Surveyor to the Metropolitan Board of Works, &c. London: E. and F. N. Spon, Charing-cross. 1875.

the sap vessels being gradually filled by the cottony filaments of the fungus; no sooner do these appear externally than examination proves that the apparently solid beam may be crumbled to dust between the fingers; tenacity and weight are annihilated."

In the matter of dry rot and decay in timber, and its preservation on land, in fresh and salt water, Mr. Britton quotes a good many old and recent authorities, and among them are professional names belonging to this country. The old, but still useful, work of our Dublin architect, George Semple, the builder of old Essex Bridge and other works, and author of "Building in Water," is quoted. Among recent Irish writers, and professional men quoted, are—Mr. Robert Ball, Mr. Mullins, C.E., and Sir Thomas Deane. The wood boring shrimp was first observed as an inhabitant of the British seas, several years ago, by Mr. Ball; and in January, 1847, it was described by Mr. Mullins, in a paper read before the Institution of Civil Engineers of Ireland, as being very injurious to the timber piles in Kingstown Harbour, and far more destructive than the *limnoria terebrans*, a sort of mollusca which, when numbers are assorted together, play sad havoc with piles or other submarine timber. Sir Thomas Deane's account of the extraordinary instance of the rapid decay of timber from rot, which occurred in the Church of the Holy Trinity, at Cork, related before the Institution of Civil Engineers of Ireland, is given in substance by Mr. Britton; but concerning these Irish illustrations and other English and foreign ones, we may have further to say hereafter.

In another paper we will pass under notice some matters respecting dry rot, and wood boring worms and insects treated in the present volume, and add some experience of our own which may be useful to Mr. Britton or the public—if he should ever bring out a second edition of his book. If we mistake not, a large amount of useful information on the subject of dry rot will be found in the pages of our contemporary, the *Builder*, extending over a series of years; and there are other sources which could be made use of in adding to the history of the subject, and some of these we may quote anon.

In concluding for the present, we may add that the work is a meritorious one, and contains a large mass of condensed information on a subject, or rather subjects, of great importance to architects, engineers, builders, workmen, and the general public.

#### NEW HIBERNIAN BANK, MONAGHAN.

Our illustration shows the design for the new bank premises in course of erection in Monaghan, for the Hibernian Banking Company.

An excellent site has been obtained on the corner facing Church-square on the one side, and the leading street to the railway station on the other.

The ground floor is occupied by the public office, manager's office, safe, and the dining-room and culinary apartments of the manager's residence; the first floor is entirely occupied by the manager's apartments, and rooms for the porter, to which there is a separate entrance. The internal fittings will be principally pitch pine stained and varnished.

Mr. P. Brodigan has the contract for the building, which is from the designs of Messrs. O'Neill and Byrne, from whose drawings our illustration is taken.

#### FINE ARTS APPLIED TO INDUSTRY.

We are glad to see that the usefulness of the Annual Exhibitions of Fine Arts, as applied to industry, in connection with the Society of Arts, is bearing fruit. Our contemporary, the *Builder*, in reference to the matter, says, in considering the whole subject of the examinations:—"Arrangements are in contemplation for holding examinations in fine arts applied to industry. In this way the whole field of arts, manufactures, and commerce, the special province of the society, will be connected with a scheme of annual examinations in the future."

#### THE CORPORATION ACCOUNTS.

(THE BOROUGH FUND.)

It has often been shown, by others as well as ourselves, that the Corporation of Dublin is unsurpassed in barefaced and dishonest extravagance. If *bona fide* work and duty were shown for what has been charged for its performance, the crime would not be so great, though the overcharge would still be a dishonest transaction. Within the last few days the public have been presented with an abstract of the accounts of the receipts and expenditure of the Corporation for the year ending the 31st of August, 1874. This is indeed nice balancing of accounts, one whole year in arrears. This method of auditing is a systematic practice, and gives an opportunity to the Council to escape much of the censure they would otherwise meet at the hands of the citizens. The knowledge that should be in the possession of the ratepayers is kept back for several months, but this should not prevent the public from comparing the nature of the accounts placed before them. We have not time at present to enter into a detail, but in glancing over the items in the different "funds" we discover enough to convince any rational person that jobbery and extravagance is as rampant as ever on Cork Hill. The "incidentals" and the "petty expenses" are still kept up, as they cover a multitude of sins. They appear small in places, but in the aggregate they amount to a large sum. In the Borough Fund Receipts we have among the "incidentals," an auditor's surcharge (belonging to 1872) of £2 12s. 6d.; and in the Law Expense account, the balance of the auditor's surcharge for the same year, £2 12s. 6d. Further on, among the receipts, we have restitution money handed in by a Roman Catholic clergyman, to the small amount of £1 8s. 9d. This conscience money has not certainly been returned by officers who are in receipt of their several hundreds yearly, and who have their clerks and assistant clerks paid out of the public money! In the Charges account, there is another auditor's surcharge entered for the sum of £20 11s. Why were not the names of those who paid the money back entered? Did several members subscribe, or was the sum taken from a forthcoming account and entered to the credit of a passing or past one?

In the Stationery account we have another surcharge of £20 8s. 6d. This is another honest transaction—all surcharges must be honest affairs. The refunding of the money is honest enough when it is really refunded, but the original illegal paying away—well, we suppose it was only an excess of zeal! Again in the Sanitary account in this same Borough Fund we have another surcharge of £51 6s. 6d. Had the Government auditor gone over the accounts for the last seven years, what a nice sum might not have been discovered of illegal payments. "The King can do no harm," it was once said, nor can the Town Clerk of a noble-minded and magnanimous Corporation. Strange, then, there should be an entry of the sum of £50 lodged by the Town Clerk, amount of salary over-paid to him in the previous year and disallowed by the

auditor. It is useless to inquire whether this £50 was paid in advance originally, on account, and not deducted.

In the "Payments," the compensation annuities to officers of the old Corporation is entered at £145 7s., while the proportion to the officers of present Corporation amount to £254 18s. 8d. We have costs, &c., of proceedings by the auditor, in relation to disallowances, £87 17s. 1d.; and further on, fees paid to civil engineer for professional services *re* Smalldridge v. Corporation, is put down at £24 11s. Who was the civil engineer? Are the Corporation ashamed to give his name, or is he ashamed himself? illuminated address to the Queen, H.R.H. the Duke of Edinburgh, the Earl Spencer, and his Grace the Duke of Abercorn, cost £20; but when we looked down further in the list we find another sum that must be tacked on to this, viz., the expenses of Town Clerk, Sword Bearer, Mace Bearer, High Constable, accompanying deputation to London to present the address on the occasion of H.R.H.'s marriage; the latter sum amounting to £82 10s., the two sums amounting to a total of £83 2s. This is a tidy sum to pay away for a deputation. Now let the citizens look at the next item—postage of summonses to members of Municipal Council, £55, or let us say 13,200 pennies, all of which could have been saved if only the porters and messengers who have little to do at the City Hall were employed to deliver those summonses.

The salaries of Lord Mayor, Recorder, and officers, the whole of whose salaries are chargeable to the Borough Fund, amount to the sum of £3,999 8s. 6d., while the proportion of salaries from General Account chargeable to same fund is £1,242 18s. 8d., the Town Clerk's assistant gets for helping in the preparation of revising burgess Lists £90 (an annual allowance), and another sum of £87 7s., for attendance at revision of Parliamentary voters' list. Is it any wonder the public ask "How does the money go?"

Confining ourselves still to this same Borough Fund, we have in sanitary expenses, for salaries of secretary of Public Health Committee, officers of health, analyst, inspectors, &c., a sum of £944 6s. 9d. The Commissioners of Metropolitan Police, for services of sanitary sergeants, constables, &c., get £1,008 5s. 3d. Law expenses, £62 17s. 4d. Cleansing Liffey and flushing sewers, £157 odd; and sewers again, £18 13s. A disinfectant for disinfections cost £38 17s.; the City Analyst, for chemicals, cab-hire, messenger and petty expenses, is paid £42 11s. 6s.; the Secretary, for cab-hire, is paid £9 12s.; the Inspector of Nuisances, in the shape alone of petty disbursements, stated to be in relation to the detection of diseased meat and adulterated milk, are paid £19 9s. 7s.; the police, for extra services in a sanitary way, and as a poundage on the collection of fines, receive £17 10s.; while the expenses of a member of the committee on deputation to London on the subject of the Public Health Bill, is put down at £10. There is a "sundries" at the tail of this sanitary account, of £2 6s. 4d.

In *globo*, then, let us state, the Sanitary expenses belonging to the Borough Fund amount to £2,699 14s. 8d. for one year, and any intelligent citizen of Dublin is able to inform himself how little the streets, courts, lanes, and alleys, and the Liffey, have been improved by the expenditure. In the matter of diseased meat and adulterated milk the Corporation may be credited with doing some good; but, irrespective of the salaries paid to the chief sanitary officers, nearly half of the rest of the money paid represents no honest work.

We have glanced at the Borough Fund account alone, and only in a very light way; but we must reserve until our next issue a sharper look into the other funds, including the Main Drainage Fund, the Improvement Fund, and the District Sewers Fund, &c. The Corporation accounts could not stand an honest dissection without covering the Municipal Council with shame and ridicule; but we suppose they are proof against such small matters.

### THE LITERATURE OF GOTHIC ARCHITECTURE IN IRELAND.\*

SPEAKING of the church of Columbkille, which belongs to the period called "Transition" by Mr. Wilkinson, when the Round Towers proper gave away to the stone-roofed crypts, our author points out the close resemblance between this church and St. Kevin's. The approach to the upper loft being through a square hole, the east end having a circular window, and on the south side near the east, in a position similar to that in the ordinary early churches, is another with an angular-headed opening similar to those in the Round Towers. The roof of this structure is constructed with flat-bedded hard whinstones of the locality, the incline forming a succession of small steps in consequence, Mr. Wilkinson thinks, of the difficulty to cut the stone to the shape of the roof. This is a very peculiar instance, he says, in which a free walling stone has not been resorted to, the flat stones, in every other respect so suitable, and at present in a good state, shew the sufficiency of the more simple arrangement.

King Cormac's Chapel, which, it must be admitted, is an interesting and peculiar building, exhibits a richness of external execution which Mr. Wilkinson draws attention to by saying that it "shews the advancing skill and taste of the age, the interior having the face of the walls ornamented with columns and circular ribs under the circular arch; the chancel end is also groined, and the doorways present very fine examples of elaborate Norman architecture." This building, which is presumed to have been erected near the end of the eleventh or the beginning of the twelfth century, has square towers, which, in our author's opinion, are "evidently the result of gradual change from the Round Towers; they afford an exceedingly interesting illustration of the modification of form to the altering circumstances of the age, in keeping with the more advanced architectural features of the building before remarked upon. The stairs, which are used to ascend one of the Square Towers, go no higher than the chamber under the stone roof; the introduction of these stairs, and other features, are in accordance with what would be expected at this period, and afford a very happy illustration of a transition structure."

We will hereafter have occasion perhaps of alluding more particularly to Cormac's Chapel, as described in the work of Mr. R. R. Brash, which appeared originally in these columns. Passing on, Mr. Wilkinson observes:—"We should at this period (the date of the erection of Cormac's Chapel) reasonably expect to find churches in which the early Norman architecture, similar to that used in the Round Towers, would be met with, and there are several interesting examples, and, doubtless, structures nearly coeval with some of the later Round Towers—as an instance, the doorway of Killeslin church, in the County Carlow, before remarked upon, is one of the many examples of the kind which might be adduced. In the plan, we recognise a great similarity with the doorway of Timahoe Round Tower, and perceive a style of architecture which, in its minor details, is almost peculiar to Ireland, being, evidently, a very early kind of imitation of the Norman or Lombard structures; and it may be remarked as a striking feature of Norman architecture, that it differs almost in every country where it has been introduced, in each of which a distinct style has originated, varying in details from each other, but all displaying the same leading features and common origin—from the Lombard and Byzantine structures."

The church of St. Doulough, County Dublin, is described as "a secondary kind of building—a transition from the churches last described to those smaller churches of the country, at a period when the pointed arch began to prevail. The approach to the

upper loft is by a staircase connected with a tower standing between the nave and chancel, if such terms may be applied to so small and peculiar a structure. Here is probably about the first use of the staircase, and it is exceedingly rude; the external wall enclosing the stairs appears to accommodate itself to the shape and winds of the stairs, and creates a very irregular outline."

In describing the features of the "Early Churches" of this country, which are very small, Mr. Wilkinson says the doors are more or less ornamented, frequently a plain arch without any or with very simple carving to the capitals. The doors are small, and the windows particularly so; and he adds—"In the construction of the circular-headed windows of these early churches there is generally in the character of the masonry a free and bold execution, very similar to that in the circular-headed doors of the Round Towers; the arch stones being often the thickness of the walls, and they display every appearance of being the construction of the same school of masons as those of the Round Towers."

In this latter opinion we differ from Mr. Wilkinson, and believe they belong to a date centuries later than that of our towers. The resemblance that is traced is merely the result of other causes already indicated. These early churches are stated to be generally from about 20 ft. to 30 ft. long, and from 14 ft. to 16 ft. wide, most of them having had a chancel or west end added to the original structure. The masonry of these early churches is admitted to be not generally good, though the doors and windows are; and this fact is strongly suggestive that the work of the walls and that of the windows is that of different times and different hands. Mr. Wilkinson's explanation of this difference comprises an "if" in explanation of this difference in the workmanship. "As if the little height of the walls were considered to require less careful construction, more regard has been paid to making the external surfaces with flat-bedded stones on edge, forming two thicknesses of walls, which in many instances have separated, and caused the ruin of the building." Surely the school of builders who erected our Round Towers—who have been generally credited with such forethought and skill, and whose structures were not constructed to separate in two—could never have erected these churches.

Mr. Wilkinson gives a section of one of these primitive churches with a stone roof, in which the stone arch remains, of an obtuse pointed form; but he thinks "in these early churches arches were, however, but little used, rude timber roofs covered with heavy flags being doubtless the ordinary covering; and in some parts of Ireland there yet remain some very rude and peculiar timber roofs, which are most likely in imitation of the early churches." We would like to have one or two illustrated examples of these peculiar timber roofs, to see could we trace any analogy between them and the stone roofs.

The remains of several of our small early churches exhibit Norman characteristics, but there are numerous others which do not. It is remarked that towers or spires were very common in the early parochial churches of England, while they are not to be found here, though possibly we had instances of ancient spires which have disappeared. The old parochial churches of England are numerous, and generally pretty large, but there are but few of our ancient parochial ones of large dimensions. If the spire was absent with us, the belfry was not, for many of our early churches have bell gables, turrets, or bell-cots, the bell gable in some instances being double, with two opens for the accommodation of two bells.

Mr. Wilkinson writes:—"In the small churches the Pointed style of architecture became common, and all traces of the features peculiar to the Round Towers or Norman style, gradually cease, except in regard paid to security, and in the towers of the larger buildings, in which several features in

common with the Round Towers prevail, the architecture, however, partaking of the Pointed style, is in accordance with the edifice of which it forms a part."

It is observed that it is in the monastic and cathedral structures that the most interesting remains of Gothic architecture are to be found, and more particularly in the abbeys and monasteries. In speaking of Boyle Abbey, as affording examples of very chaste and beautiful Norman architecture. Mr. Wilkinson takes occasion to score what he considers a point in favour of the Christian theory of our Round Towers. "In buildings of this class, the towers [square] are carried on the large and lofty arches at the intersections of the transepts, unlike the towers of a later period, which are small and peculiarly constructed; and it is singular that the buildings in which these towers raised on lofty arches occur, are almost wholly in the interior of the country, while the monastic buildings, small and lofty towers peculiar, placed on a narrow arch near the entrance to the cloisters, are near the coast; and the towers, so much resembling the Round Towers, for the purpose for which they appear to be designed, are an additional evidence in support of the theory advanced with respect to these structures."

Mr. Wilkinson classes the Norman architecture of Ireland under three heads, or shews it to possess three distinct features in this country; the first as displayed in the doorway of Timahoe and Kildare Round Towers, the doorway of Killeslin, a similar door at Killaloe Cathedral, of which he states the ornament resembles the sculptured foliage of the later Roman remains; and he thinks it was probably a style of imitation originating from the hard nature of the sandstone, which was better suited for work requiring more of surface cutting than deep carving. Secondly, he considers the style common in England is that displayed in King Cormac's Chapel, in which the hollow mouldings contain bold sculptured figures, flowers, carved heads, &c.; and the front of old Roscrea Church is pointed to as affording a similar example. The third style, which he describes as of a continental character, prevails chiefly in the west of Ireland, Ballintubber being adduced as affording a fine example.

The Norman architecture of Ireland, it is admitted, displays features varying much from each other; yet, in Mr. Wilkinson's opinion, they are yet all of one common character, as might be expected, he says, from the extended period in which the Norman architecture prevailed in Ireland. It is also observed that Ireland possesses Norman remains of older date than those in England to be found in the stone structures of the Round Towers and stone-roofed chapels. He says:—"The Norman style of architecture prevailing in Ireland, therefore, longer than in other countries, chiefly occasion the varieties of styles mentioned; and it is doubtless owing to her remote geographical position, for at a period when the Pointed style was almost universal in England, buildings in the Norman style were being erected in Ireland, and it will be found that other succeeding styles were also later in the adjoining country of England."

Gothic architecture, it is observed, possessed three distinct eras in England after the circular Norman arch—the early Pointed, late Pointed, i.e., the Decorated style, and thirdly the Florid or Perpendicular. It has been remarked, writes Mr. Wilkinson, "that in Ireland the Pointed style was introduced chiefly through England, and very generally prevailed on the eastern coast, but displayed itself very little on the west; and this is to be accounted for by the peculiar position of the country at that period, for the Pointed style never developed itself on the west in any very perfect examples. There are, however, fine examples of transition style from the circular Norman arch. The later Pointed, mixed with the Perpendicular or last style, being made up together in the same structures, and developing themselves without any of that regularity which prevailed in the

\* See ante.



English structures, and in the monastic buildings of the west may be traced a more continental than English style of architecture."

The decline of Gothic architecture in Ireland and England is attributed to the dissolution of the monasteries. When the Irish monasteries were being dissolved, the later style which had advanced to such an elaborate and enriched state in England had, in Mr. Wilkinson's opinion, barely developed itself in Ireland. Our ecclesiastical buildings generally, he says, "though numerous, are small in comparison with those in England, and seldom display the purity and perfection of the later Pointed styles which are developed in the English structures; they nevertheless, in the early Norman and transition styles, exhibit some exceedingly beautiful examples, and perhaps better suited to our study for the buildings which the social condition of the present age requires, than the grander and larger edifices of the cathedral structures of England; and the monastic buildings, being more of the size of the domestic habitations of the present day, contain much for profitable study, and in the materials employed, and in the constructive skill exhibited, are invaluable."

We have quoted Mr. Wilkinson pretty largely in our present paper, so as to do justice to the author and his subject from his own point of view. In our next paper we will give a few more extracts from another section of the work under notice—the ancient castellated and domestic structures of this country, and review in conclusion the opinions put forward by Mr. Wilkinson anent the early origin and gradual development and use of the pointed arch in Ireland, which with truth might be said, despite of all that has been written upon the subject, has a history as old, if not older, than our Round Towers.

If the Round Towers be admitted for the moment to be of Christian origin, then the pointed arch in its rudimentary form (an angular-headed opening formed by two stones leaning against each other) exists in many of our towers, and, consequently, must have had its origin centuries before the date usually assigned to it. Believing, however, as we do, that our Round Towers belong to a Pagan era long anterior to the erection of our early Christian churches, what becomes of all the fanciful notions which have been entertained respecting the origin of the pointed arch? Mr. Wilkinson has, however, something interesting to say on this head, to which we subscribe, and his opinions will be done justice to in our next paper.

## PUBLIC RECORDS IN IRELAND.

(Continued from page 223.)

THE more we examine these "Fiant" of Henry VIII., the more deeply interesting and historically valuable they prove to be, and they cannot be other than valuable aids to the future historian of the times of which they treat.

1543.—Grant to John Goldsmith of the office of clerk of the council, vice John Alen. To hold for life, with the accustomed fees. [Although there are "Fiant" in these three entries of this name, they appear to be the one person, though spelt differently. Further back, in 1541-2, there is a—Grant to John Goldsmith, gent., of the office of searcher in the port of Galway. To hold during pleasure, with the accustomed fees. And further on, in 1545, there is a—Grant to John Goldsmith, on the surrender of a previous grant, of the office of clerk of the council. To hold for life, with the accustomed fees, and a fee of £20 sterling. Whether our native poet Oliver Goldsmith, the author of the "Deserted Village," was any descendant of the above John Goldsmith, the clerk of the council, it would be difficult at this date to say.]

1543.—Pardon of alienation to Thomas Fitzwilliam, of Baggotrathe, Esq. [the locality of the present Baggot-street]; Edward Sutton, of Richardston, gent.; Walter Golding, of

Portmarnock, gent.; Bartholomew More, of Athcarne, gent.; Richard More, of Nowan [Navan], merchant; John Clerke, of the same, chaplain; and Robert Foster, of the same, merchant; of the manor of Churcheston; lands, Churcheston and Finianston, County Meath, by Thomas Waring, of Nowan; George Bedlewe, or Bellewe, of the same, chaplain; Patrick Mann, vicar of Kylmessan; John Dowding; Nicholas Wafyr, gentleman; and James Lynam, merchant; or by Walter Golding, of Churcheston, gent.

1543.—Charter incorporating the Cistercian abbey of the B.V.M. and St. Patrick, of le Nyvorie [Newry], as a secular college by the name of the warden and vicars choral of the college of the B.V.M. and St. Patrick, of le Nyvorie; with a common seal. John Proute, abbot, to be first warden. Also—Confirmation of its possessions, paying yearly four marks in satisfaction of first fruits, and twentieth parts.

1543.—Lease to John Ryan, of Dublin, clerk, of the tithes of Iryshton, in the parish of Palmerston by Anilyff [the River Anna Liffey], County Dublin, and the rectory of Palmerston, parcel of the possessions of the late hospital of St. John the Baptist, without the Newgate of Dublin. To hold for 21 years, at a rent of 47 shillings.

1543.—Grant to Walter Archer, the sovereign, and the burgesses and commonalty of Kilkenny, in consideration of £200 10s. paid and £222 to be paid, of the site of the monastery of Preachers of Black Friars of Kilkenny, with the "King's Chambre" and other appurtenances, lands in Kilkenny [here follows a list]—the site of the monastery of the Franciscan or Grey Friars, lands in Kilkenny [another list]. To hold to them and their successors for ever by the service of a twentieth part of a knight's fee, and a rent of 22s. 4d. Reserving to the lord deputy for the time being the use of certain apartments in the monastery of Friars Preachers, and of firewood from the wood of Troeswodde as often as he shall stay at the town. [The above is a very suggestive "Fiant." The Marble City at the above date had not as yet given rise to its modern characteristics—"fire without smoke, water without mud, and streets paved with marble." Kilkenny now burns a good deal of her own coal, but she would do well to get rid of some of her mud, and use a little more of her marble and other limestones.]

1543.—Lease to Thomas Luttrell, of Luttrellston, knight, of the site of the hospital of St. John the Baptist, without the Newgate of Dublin, lands in Dublin and suburbs [here follows a long list of lands in County Dublin and adjacent counties], and all appurtenances, except the services and rents out of the manor of Palmerston by Aniliffe and the lands of Palmerston by Aniliffe and Irishton, in the parish of Palmerston; Whiteston, in the parish of Palmerston by Grenoke, and Newton, in the parish of Luske, Dardieston, Ballydowde, and a meadow by Hoggin Green [the locality of College Green and St. Andrew-street]. To hold for 21 years, at a rent of £110. A memorandum states that £9 is allowed for the repair of the chancel and the collection of rents. [These "Fiant" throughout show how well the Lutrells fared, but their once large possessions have witnessed many changes, and the name in Ireland as a living influence is now almost unheard.]

1543.—Pardon to Margaret Guynan, of Wexford, single woman. [It would be interesting to know what offence "Madge" committed, and whether she aided or abetted the "captains" of her nation.] Here, however, follows a concession to a troublesome customer on consenting to mend his line and sin no more:—

Grant under king's letter to Dermot O'Sheaghyn, knight, and captain of his nation, upon his submission of the manors and lands of Gortenchegory, Dromneyll, Delyncellan, Ballyhide, Monynear, Ardgossan, Ballyegyan, Kepparell, Clonsheagh, Tolonegan, Lycknegash, Crege, Karryngs, Tyrrelaghe, Rathvilledown, Ardmylowan, a

third part of Droneskenan, a third part of Rathe, half of Flyngiston, Ardvilleoghe, Drimle, Ballyhwve, Cowle and Behe, previously held by him and his ancestors. To hold in tail male, by the service of one knight's fee. [O'Sheaghyn was not sent to "Connaught or h—ll," but he was let rest there on the "green banks of the Shannon" in quiet contentment, so long as he did not attempt to rebel or renew his raids upon the English Pale.]

Here is a "Fiant" worthy of note, as it undoubtedly relates to lands in the locality of the present Harold's Cross, Dublin:—

1543.—Grant to Bernard Fitz Patrick, knt., baron of Upper Ossory, under king's letter, of the reversion of the Grange of Balgeyth, *alias* the Graunge in the Marche, *alias* Harrold's Graunge, County Dublin, held by Walter Pypparde, of Kilca, under lease for 21 years, and valued at £10 9s. 8d. a-year. To hold in tail male, by the service of one knight's fee.

[We may here add a note. The name of Walter Pypparde occurs seven times throughout these "Fiant," and is written in different ways, as Peppard, Pepparde, Peparde, Pipparde, Pipperte, and as first given. We suppose some of our readers have read the Irish novel of the "White Horse of the Peppers." The following interesting "Fiant" are historically valuable, apart from their connection with Walter Pepper:—1543.—Grant to James Earl of Desmond, under king's letter, of the reversion of premises leased for 21 years to Walter Peppard, of Kilca, gent.—the hospital and other messuages, the Grange of Clonliffe (the present grounds of Clonliffe College, Jones's-road, include a portion of the above grange), and all lands in the suburbs of Dublin belonging to the demesne land of St. Mary's Abbey and the Fyrris of St. Marie Abbey (the church, abbot's lodging, the Aish parke, the Ankesters' parke, and other premises excepted). To hold in tail male, by the service of a fifth part of a knight's fee. In 1543-4 there is a—Grant to Morrogh Earl of Thomond (Thomond), under king's letter, of the reversion of the site of the hospital of St. John the Baptist, without the Newgate of Dublin, leased to Edmund Redman, of Dublin, surgeon, and to Thomas Luttrell, of Luttrellston, knight, and of Culmyne and Ranvelleston, County Dublin, parcel of the possessions of St. Mary's Abbey, lease for 21 years to Walter Pepparde, of Kyla. To hold in tail male, by the service of one knight's fee, and paying 8s. 4d. to the heirs of Walter Hussey. In full satisfaction for all possessions claimed in Oynaghe (Owney) or elsewhere on this side of the Shannon. Again, in 1543-4, there is a—Grant to Donogh O'Breane, knight, baron of Ibrackane, under king's letter, of the reversion of Dressshoke, near Dublin, Kilmacadrake, and Newgrange, *alias* the Grange of Ballachemer, County Dublin, parcel of the possessions of St. Mary's Abbey, leased to Walter Pipperte, of Kilca, for 21 years. To hold in tail male, by the service of one knight's fee. In full satisfaction for all possessions claimed in Oynagh or elsewhere on this side of the Shannon. In 1544-5 there is another—Grant under king's letter to Murrogh Earl of Thomond, of the reversion of Culmyne and Ranvelston, County Dublin, parcel of the possessions of the abbey of the B.V.M. (St. Mary's Abbey) by Dublin, leased to Walter Pipparde for 21 years. To hold in tail male, by the service of one knight's fee, paying yearly 40s. to the chief lords of the manor of Castleknocke, and 3s. 4d. to the heirs of Walter Hussey. In full satisfaction for all possessions claimed by him in Oynaghe or elsewhere on this side of the Shannon. Again in 1544-5 there is a—Grant under king's letter to Edward Basnet, dean of St. Patrick's, Dublin, in consideration of the sum of £57, of the reversion of the castle and lands of Kiltiernan, County Dublin, part of the possessions of the abbey of the B.V.M., by Dublin (leased by William, late abbot to Walter Golding, after by the Crown) to Walter Pipparde for 21 years. To hold to him, his heirs, and assigns for ever by the service of a

twentieth part of a knight's fee, and a rent of 8s. Again, in 1545, there is a—Lease to Walter Pippard, of Dublin, gent., of the manor of Kyla, County Kildare; lands, Domahenooke, Halloheyes, Bolton, Marshallston, Little Newton, Byrnston, Castellow, Ballycullen, Becanston, Jordanston, Livitston, Croket, Callan, Aylmerston, Corbally, Byrtonston, Ballyndreny, Killerowe, Turbetas, Gurtenmoolaghe, Tancardeston, Dullardeston, Grange of Rosnalven, and half Mygayn, possessions of Gerald Earl of Kildare, attainted, and leased to William Brabazon, sub-treasurer, for 21 years. To hold for 10 years from —, at a rent of £85. [So much for the present about the Peppers and their share in the confiscated estates of the "Irishry."]

1543.—Lease to Edward Basnet, dean of St. Patrick's, Dublin, of Newcastle M'Kinnigan, alias the King's Castle, in the O'Byrnes country, in the marches of Dublin, County Dublin. To hold for 21 years, at a rent of £26 8s. The lease to be void if the king determine to place his garrison there. [This dean of St. Patrick's figures in another "Fiant" beside those given above. In 1544 there is a—Lease to Edward Basnet, dean of St. Patrick's, Dublin, of Ballydowde, County Dublin, parcel of the possessions of the abbey of the B.V.M. (St. Mary's Abbey) by Dublin. To hold for 21 years at a rent of 16s., and paying 28s. 9d. yearly to John Allen, farmer, of Esker. The country of the O'Tooles and O'Byrnes, on the borders of Wicklow and Dublin in Henry VIII.'s reign, must have contained a number of contumacious rebels, seeing that the king had under consideration the fixing a garrison there when granting the lease to the dean of St. Patrick's].

1543-4.—Grant under king's letter to Denis O'Grada, knight, captain of his nation, upon his submission of the manors and lands [list given in County Clare] previously held by him and his ancestors. To hold in tail male, by the service of one knight's fee. The grant not to extend to any possessions on this side of the Shannon.

1543-4.—Grant to Anthony Sentleger, gentleman of the privy chamber, lord deputy, in consideration of £60 sterling to be paid, of two water mills with their appurtenances, on the Boyne, by Trym, County Meath, belonging to the late Monastery of the B.V.M. of Trym; also the water, water-courses, soil, and fishery of the Boyne, from the mill of Newhaghard to the bridge of St. Peter's, near the Newton of Trym. To hold for ever by fealty only.

1543-4.—Grant to Jenico Preston, knight, Viscount Gormaneston, in consideration of the sum of £6 18s. 4d., of a messuage and close in Drogheda, held by John Ywe, carter, parcel of the possessions of the Friars Preachers of Drogheda. To hold for ever by the service of a twentieth part of a knight's fee, and a rent of 4d.

1544.—Grant to Thady, son of Fergan-anym O'Keroyll, of the captaincy of the country of Ely Skeroyll, during good behaviour, with such jurisdiction and profits as other captains in the marches of the kingdom. [In this year there were a number of pardons granted to persons, including soldiers, yeomen, cooks, gents., and clerics, &c.]

1544.—License to George Archbishop of Dublin, with consent of the chapters of the cathedrals of the Holy Trinity and St. Patrick, to alienate to Silvester Genyngs, Laurence Townley, and Andrew Wise, of Thomascourt, gentlemen, the town and land of Rathland, lying to the south of Thomascourt Wodde, occupied by Thomas Bathe. To be held for ever, at a rent of 18s. 4d.

1544.—Grant to the dean and chapter of the cathedral of St. Patrick, Dublin, for the glory and honour of God, the Blessed Virgin, and St. Patrick, and for the keeping of hospitality there, of license to absent themselves from their cures, while residing within the precinct of the cathedral, they finding fit cures for their churches.

The following "Fiant" is not the least interesting:—1544.—Grant to Con Earl of

Tyrone, of Balgryffyn [Balgriffin on the Malahide-road], County Dublin, valued at £16 17s. 11d. a-year. To hold for life, remainder to Mathew O'Neill, baron of Dunggennyn, in tail male, remainder to the heirs male of the earl. To hold by the service of a twentieth part of a knight's fee, and a rent of 57s. 11d.

The "Fiants" relating to lands and persons in the city and county of Dublin alone, are instructive as well as interesting, and where they do not reveal much, they suggest a great deal more of information that may be obtained on inquiry or research elsewhere. In reading them they afforded us a clue to many hidden or unnoticed particulars that we may probably turn to account hereafter respecting Dublin history in general, and north Dublin or Fingal history in particular. In our next issue we will continue our extracts.

## ROADS AND PAVEMENTS—

THEIR CONSTRUCTION, WEAR AND TEAR, SANITARY ASPECTS, ETC.

(Continued from page 228.)

### THE DANGERS TO LIFE AND LIMB FROM THE EXISTING CONDITIONS OF THE STREETS OF THE METROPOLIS.

THE dangers to life and limb, and the painful sense of insecurity prevalent amongst a large proportion of London, created in the minds of the aged and infirm, and of females, from the constant casualties arising from the conditions of the street and of the traffic, formed a special topic of examination.

We obtained from the Registrar-General the following returns of the numbers annually killed in the streets:—

1869	..	..	..	..	197
1870	..	..	..	..	198
1871	..	..	..	..	208
1872	..	..	..	..	218
1873	..	..	..	..	217
1874	..	..	..	..	211
Total in six years	..	..	..	..	1,239
Average	..	..	..	..	206

The numbers maimed and injured in the streets are at least ten times the numbers of those killed. Last year 2,855 cases were brought under the cognisance of the police. From the frequency of fractured limbs, arising from falls in the street, it became an object of inquiry by the first General Board of Health to provide appropriate stretchers or carriages, to avoid the additional injuries from the jolting over the pavement of the common carriages in which it is the usual practice to place the injured for removal to their homes or to hospitals, often causing serious additions to the original injury. But the regularity of the numbers annually killed denotes the permanence of the fatal conditions; and the regularity of their recurrence, that they are insurable. It is, moreover, to be noted that the engineering means of security for life and limb against casualties in the streets is at the same time the primary security needed for the protection of life and limb and property against the spread of fire in houses, as shown by the report on that subject, namely, the immediate application of water from street hydrants. It may be calculated that if there be no legislative and administrative interference to prevent it, and the conditions of the local administration are allowed as at present, more than one thousand persons are doomed to be killed, and ten times that number to be maimed and injured in the streets during the next five years. And so from year to year. Added to which will be two out of every three persons who are burned alive or injured by fire, and two out of every three serious fires that now occur.

The answers to our inquiries by the superintendents of the metropolitan police as to the causes of accidents in the streets, assign the "greasy" condition as the one in which the greatest proportion of accidents occur, whatsoever and howsoever good may be the condition of the pavements.

The superintendent of the G division

answers:—"I beg to report that the condition of the surfaces of the carriage roads in which the greatest number of accidents occur to foot passengers in the division is good—when dry—being granite paving or macadam;—but in damp weather it becomes very greasy and slippery, and is the cause of many accidents through persons slipping down at crossings." The accidents to horses he describes as governed by the like conditions of damp or dry weather.

The inspector, in transmitting the answers from the Superintendents of the A, B, and C divisions, states that "the paving with granite appears to me to become so very slippery at times that I am quite afraid to ride in those streets so paved. Charing-cross, being on a slope, is the worst place in my district, and very often it is absolutely necessary to put gravel down so that horses may be able to travel with any degree of safety. The objection to macadam at this and other places is, I imagine, the difficulty of keeping it in repair. The foot pavements, when dry and clean, are as good, in my opinion, as one could wish; but in wet and dirty weather they become greasy and unsafe for old and infirm people to walk upon, and a disgrace to a capital like London. I would strongly urge, therefore, that some means may be adopted for the proper cleansing of all foot pavements, which would be an immense boon to the public."

These answers, it is to be noted, refer to the old granite pavements over the great extent of the streets within the district of the metropolitan police. But a more particular inquiry was made as to how this common condition was varied by the new forms of pavement introduced in the largest proportion within the jurisdiction of the City Corporation.

On a comparison as to the slipperiness made between granite, asphalt, and wood pavements, on the observed number of falls during equal periods of time, taken by direction of Mr. Haywood, the City Engineer, at the instance of the City Commission of Sewers, it appeared granite was rather more slippery than asphalt, and that the wood was, on the whole, the least slippery of the three. There is no doubt, however, that in certain conditions the smoother pavement is the most slippery of any—that is to say when, by neglect, it is made slippery by being made greasy.

The testimony of omnibus and carriage drivers and shopkeepers, and of the witnesses whose testimony was collected by Mr. Sharp, was concurrent and conclusive, that on "dry" days and on "very wet" days the asphalt is not slippery, and that then there is no special complaint against it; but that, on what are called "greasy days," and at particular times and conditions it is, as might be expected, the most slippery of any for part of the time, but not for the whole of the day. The conditions are the spread of unctuous dung, adhesive mud, which the broom does not remove, daubed over the surface of the pavement, and then left to dry. On a slight shower, or on a deposit of moisture from a fog, this mud is made semi-fluid, oleaginous, or "greasy," and the surface is made slippery, and it is then that the accidents occur in the greatest number on the smoothest pavement. All dung left upon the surface of the pavement, especially upon a smooth pavement, of the carriage way, and left dry, is a visible and culpable preparation for slipping, when it is moistened, as much so in its way as orange-peel left on the foot-pavement. A full fall of rain, which dissolves the lumpy surface matter, completely restores safety. As already stated, at hunder shower at night puts the pavement in a condition of security for the morning traffic. A jet of water properly applied at any time does the work of a thunder shower; and with a due and moderate appliance of water to prevent the conditions of greasiness, the more competent administration of Paris has achieved for eighteen years an increased security of the traffic over smooth asphalt road-ways, which the local authorities o

London appear to assume to be impracticable.

Sir Joseph Whitworth, in his evidence before the Health of Towns Commissioners, speaks of the impracticability of removing this greasy condition by the broom alone. "No kind of street or road mud can," he says, "be properly cleansed (meaning by the broom) when the dirt is in that sticky or clammy state which is produced by the presence of a certain proportion of moisture. The continuance of that unmanageable condition," i.e., with the best of brooms,—"so unfavourable to traffic, depends on a great variety of circumstances, the state of the atmosphere pure, and the direction of the wind, the influence of the sun, the nature of the materials of which the road is composed, their mode of construction, and more particularly the actual state of the surface, as regards repair and cleanliness. If it be full of holes and covered with dirt, the continuance of that particular condition of superficial matter above referred to will be indefinitely prolonged, during which period all effectual cleansing will be impracticable."

It is to be repeated and enforced that water must be systematically used to meet the difficulty. Assuming the streets to be properly cleansed by water early in the morning, before the commencement of the traffic; after its commencement in the crowded thoroughfares, where the droppings are stated to amount to three or four loads daily per mile, the effective means of prevention, according to Sir Joseph, would be to have a water-cart kept moving in the line of the traffic, to liquify the dung as it falls, and to have a light sweeping machine to follow it and remove it.

(To be continued.)

### THE BRITISH ASSOCIATION AT BRISTOL.

THE meeting of the British Association of this year was opened at Bristol on Wednesday last. The President's address was delivered in Colston Hall. Professor Tyndall, in introducing Sir John Hawkshaw, said that his name was celebrated throughout the world for his practical application to works of the greatest magnitude of some of those sciences which it was the function of the Association to foster and advance. In him he did not doubt they would have a wise and prudent head—a leader not likely to be caught up in the atmospheric vortices of speculation about things organic or inorganic, about mind and matter. He had looked forward for some time to the crowning act still in prospect of Sir John Hawkshaw's professional career, to give our perturbed spirits rest in crossing the Channel.

Sir John Hawkshaw then commenced to give a review of the engineering achievements of the ancients, and traced the progress of modern mechanical science in railway telegraphy and marine architecture, and concluded by a forecast upon the future prospects of discovery. Though the address, as a whole, was good, there was nothing very new communicated, and there are, doubtless, some who expected to hear an address of a different intellectual calibre. The address will create none of the surprises, nor lead to a tithe of the criticism that Professor Tyndall's did last year at Belfast. It must, however, be remembered that a philosophic essay is quite different from a narration of facts; and while Professor Tyndall had free scope for the wings of imagination in boundless space, Sir John Hawkshaw was obliged, as an engineer, to confine his utterances to practical matters which do not admit of poetical treatment. The principle of life, of our nature and being, is one thing, but the appliances by which we live and by which the world grows in strength and wealth is another.

We give a couple of extracts from the opening and closing of the address:—

Sir John Hawkshaw, who on rising was received with applause, said he proposed to say something of

a profession to which his lifetime had been devoted—a theme which could not, perhaps, be expected to stand as high in their estimation as in his own; but he had chosen it because it was a subject he ought to understand better than any other. Having referred at length to the engineering works of the ancients, tracing architecture from the Egyptians to Greece and Rome, and after an allusion to the great building age in Europe from the tenth to the end of the thirteenth century, he entered upon the field of modern science with some remarks upon the steam engine, of which he said that it gave mankind no new faculty, but it at once set his other faculties on an eminence, from which the extent of his future operations became almost unlimited. Passing on to machinery used for the manufacture of textile fabrics, they had appliances of complex ingenuity most of which were in use before Watt's genius gave the world a new motive power; and had the steam engine never been perfected, they would still have enormously increased the productive power of mankind. Steamboats, the electric telegraph, and railways were more within the cognisance of the world at large, and the president recalled the time when a member of that Association, and an able one too, declared that no steamboat would ever cross the Atlantic, founding his statement on the supposed impracticability of a steamboat carrying sufficient coal for the voyage. Yet soon after that statement was made the *Sirius* steamed from Bristol to New York in seventeen days, and was followed by the *Great Western*, which made the homeward passage in thirteen and a-half days. With those voyages the era of steamboats began. . . .

After dealing with the subject of railways at considerable length, and calling attention to the waste of fuel, and speaking briefly of guns and their enormous progress in a few years, Sir John Hawkshaw concluded as follows:—

The marvellous progress of the last two generations should make everyone cautious of predicting the future. Of engineering works, however, it may be said that their practicability or impracticability is often determined by other elements than the inherent difficulty in the works themselves. Greater works than any yet achieved remain to be accomplished—not perhaps yet awhile. Society may not yet require them; the world could not at present afford to pay for them. The progress of engineering works, if we consider it, and the expenditure upon them, has already in our time been prodigious. One hundred and sixty thousand miles of railway alone, put into figures at £20,000 a mile, amounts to 3,200 million pounds sterling; add 400,000 miles of telegraph at £100 a mile, and 100 millions more for sea canals, docks, harbours, water, and sanitary works constructed in the same period, and we get the enormous sum of 3,340 millions sterling expended in one generation and a-half on what may undoubtedly be called useful works. The wealth of nations may be impaired by expenditure on luxuries and war; it cannot be diminished by expenditure on works like these. As to the future, we know that we cannot create a force; we can, and no doubt shall, greatly improve the application of those with which we are acquainted. What are called inventions can do no more than this, yet how much every day is being done by new machines and instruments. The telescope extended our vision to distant worlds. The spectroscope has far outstripped that instrument by extending our powers of analysis to regions as remote. Postal deliveries were and are great and able organisations, but what are they to the telegraph? Need we try to extend our vision into futurity farther? Our present knowledge, compared to what is unknown even in physics, is infinitesimal. We may never discover a new force—yet who can tell?

After the address, which was received with applause, votes of thanks were passed to the past and present presidents.

(To be continued.)

### CORRESPONDENCE.

#### THE MARYBOROUGH GLEBE-HOUSE COMPETITION.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—As you desire that a few more of the competitors for above would favour you with their ideas, I have much pleasure in giving you mine. Some time after submitting my designs, I received the enclosed printed circular from the hon. sec. of the committee, which bears the form of an invitation to compete for the work. I, in reply, mentioned my fees. In the week following I received a

post card from Mr. Hamilton, R.M., "informing me that "an architect had been selected." In a letter since received from a friend in town, the following passage occurs:—"Just at the eleventh hour, a gentleman (a Mr. Wrafter) came forward and offered a plan *gratis*, and superintendence of same; and for £500 a plain limestone-fronted house—and the plan was accepted." This gentleman is, I believe, in no way connected with the profession, and I think that when a committee of gentlemen put a number of architects to great trouble and expense, and afterwards accept an offer like the above, returning the drawings without so much as thanking them, they are open to great censure.

I am sorry to find that the system of calling on architects to tender for work is gradually springing up in this country, even though it may, at times, have some good effects, such as showing up those who too often take work much below the professional standard of prices, and not that alone, but, as is frequently the case, offer to do work for nothing, much to the disadvantage of those who are endeavouring to work their way upward in the profession, while strictly adhering to the rules laid down by the R.I.A.I.

NEMO.

[CIRCULAR.]

GLEBE-HOUSE AT MARYBOROUGH.

Maryborough, 4th August, 1875.

SIR,—In reply to your letter of the 2nd instant, on this subject, the committee appointed in this matter desire to be informed on the following points, before selecting an architect to carry out the proposed building:—1. Your terms for preparing a plan or plans, to be approved by committee, for such a building as pointed out in advertisement, of about eight apartments, with offices, yard, and enclosed garden of one rood. 2. Your terms for superintending the carrying out of said work to its completion.—Your obedient servant,

THOMAS HAMILTON, hon. sec.

To —

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In response to an advertisement in your last issue, for plans of Glebe-house proposed to be built at Maryborough, I applied for conditions and particulars some seven days since, but have not been favoured with an answer to, or even an acknowledgment of, my application. This has scarcely the appearance of a *bona fide* competition, and perhaps you may think it worth making reference to in your next, so that even yet the parties concerned might conduct the competition satisfactorily.—Yours,

W. M.

12th August, 1875.

SIR,—Since I wrote last night with reference to the Maryborough Glebe-house Competition, a post card is to hand, on which is written:—

MARYBOROUGH GLEBE-HOUSE.

The committee have selected a local architect.

THOS. HAMILTON, hon. sec.

Newpark, 11 Aug., '75.

This scarcely looks like fair play. W. M.

[A few other competitors write in the same tone. We cannot find space for any more. Architects would do well to let such competitions alone in future.—Ed. I. B.]

#### "LABOURERS' COTTAGES AT GARRYHINCH."

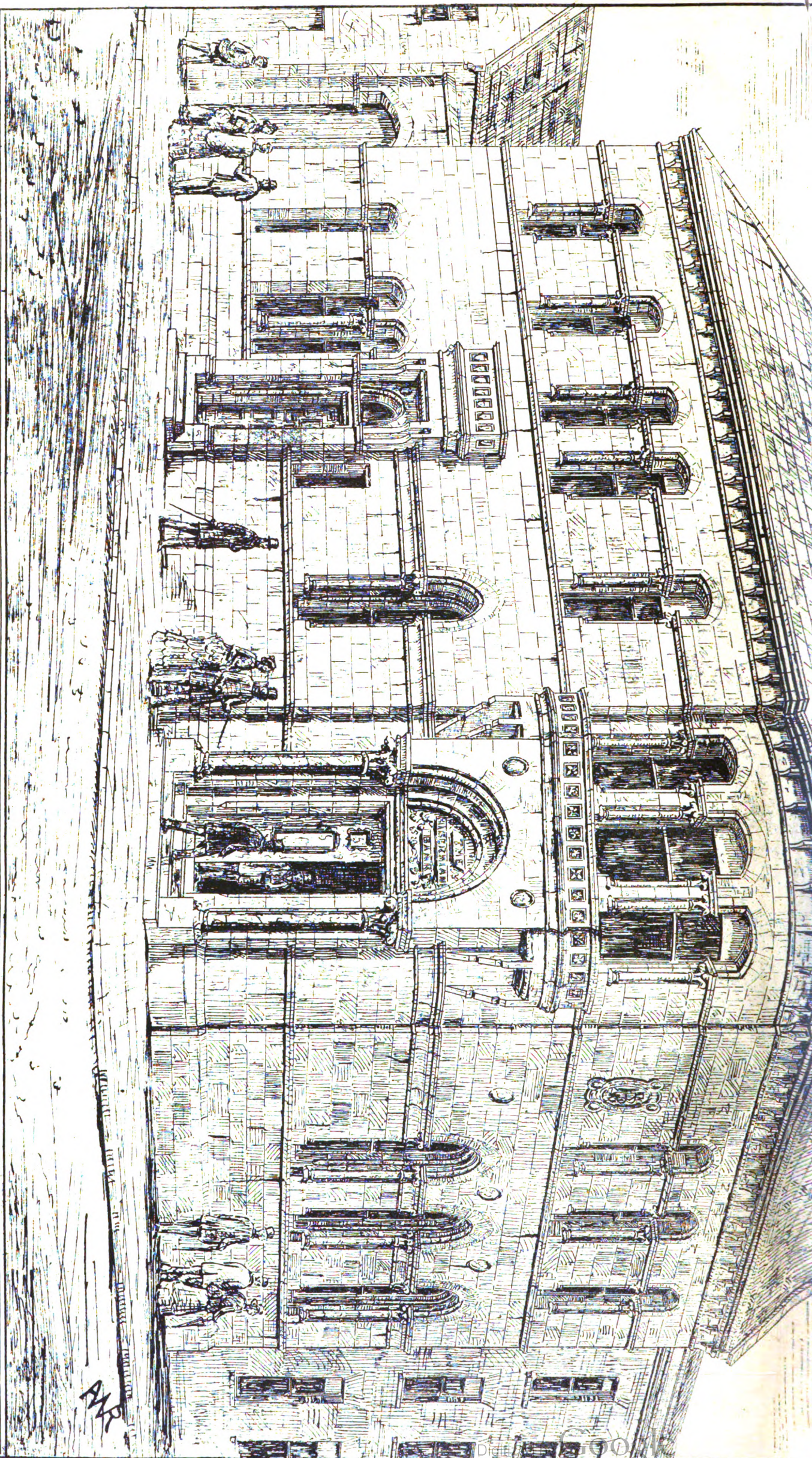
TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In the last issue of your very useful publication you referred to the labourers' cottages built for Mr. Warburton, of Garryhinch, and asked to be supplied with information as to the expense, &c., of them. I, as one of the contractors for part of the work, beg to supply the following account. The contract price for each cottage and out-offices, according to the estimate of Mr. T. Wright, Ballymorris House (who prepared the plans and specifications, &c.), was £110 4s. 2d., viz., mason and carpenter work, taken together by one contractor, £79 14s. 6d.; slating, ceiling, plastering, and dashing, taken by another contractor, £28 19s. 8d.; glazing and painting, £1 10s.



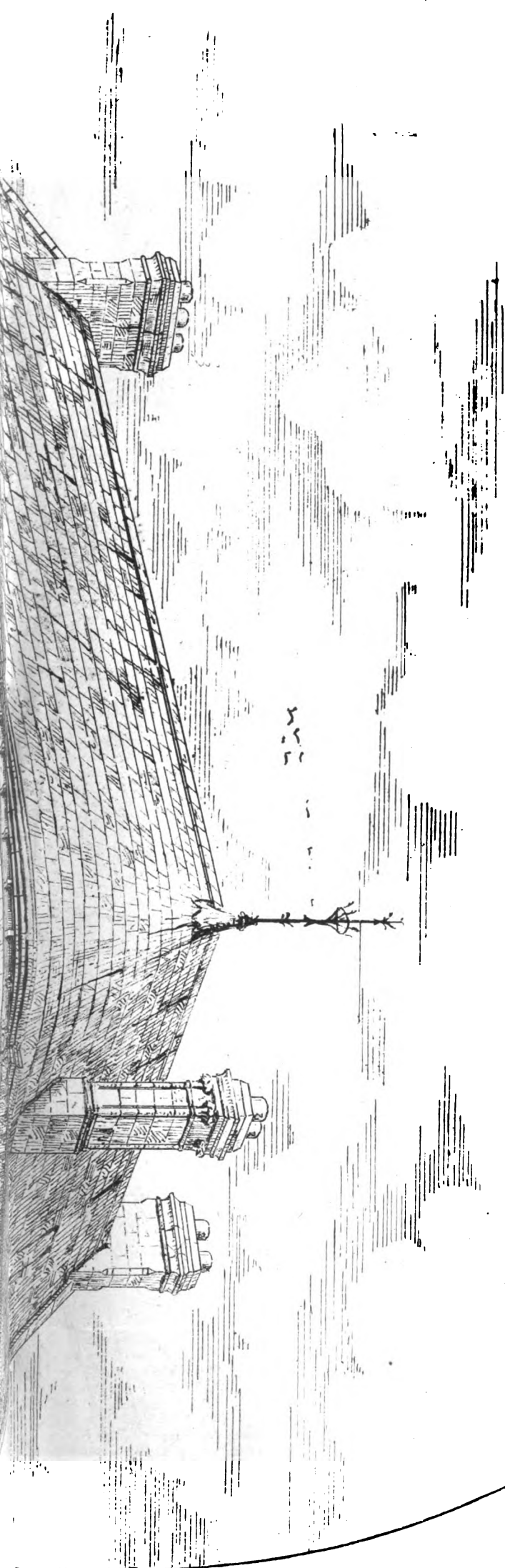






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The walls are of rubble masonry, the stone (limestone) quarried within a mile and a-half of the work. The window and door jambs, arches over opes, partitions, eave-courses, fireplaces, chimney breasts and flues, Athy bricks; lime 1s. 2d. per bag. Slating—countess slates, from Dublin, nailed on laths or battens 2 inch by  $\frac{1}{4}$  inch, and thorough rendered on under-side. The whole roof and bed-rooms ceiled, with lath and plaster two coats, and skimmed. Window-sashes and frames, outside doors and frames, and ground joists red deal. The inside doors and frames, and flooring, white deal—all the timber bought in Dublin. The cut stone door blocks, window and door cills from Clonaslee quarries. All the interior of the walls plastered, two coats and skimmed and whitened; outside rendered and dashed.

M. G., Contractor.

August 25th, 1875.

#### HOW THE CITY RATES ARE SPENT.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Would you kindly let me know if the scavengers and carters employed by the Corporation are permitted to enter the premises, and go upon the footways opposite the shops of, green-grocers and others for the purpose of removing vegetable refuse, &c.? If so, why not allow them to *clean our ash-pits* without having to pay 5s. per load under the new bye-law anent "*Domestic Scavenging*?" There may be weekly perquisites in the way.—Yours, ONE ON THE FOOT.

August 30th, 1875.

[Everything is permitted. There is no real and systematic supervision.—Ed. I. B.]

#### WANT OF RAILWAY COMMUNICATION IN THE WEST AND SOUTH OF IRELAND.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Nearly twelve months have elapsed since the above subject was mooted in the columns of the IRISH BUILDER. Our hopes were then raised that the branch to Claremorris would be under way, or at least progressing, by this time. But, alas! we are now as far off as ever. The Midland Great Western Railway Company is as liberal and considerate as any in Ireland. They sent down their staff of engineers at the period above alluded to, to make a *reconnaissance* of the country, and the *on dits* at the time were that those parties selected the site for the Ballinrobe terminus at the southern end of the town, which, I presume, was only (as the French say) a *canard*, as no engineer would or could select the exact site for a station till the surveys and levels had been first accurately taken.

In connection with the Ballinrobe branch, another easy line presents itself from Tuam to Claremorris, making it nearly an air line from Ennis to Athenry, Tuam, and Claremorris. This line would go straight through Miltown to Clare, which would give a direct communication with the north-west and south of Ireland, diverting the traffic to England, which is now in the hands of the Great Southern and Western and the Midland Great Western lines, and giving a share of it to the Waterford and Limerick Railway, which has at present a first-class fleet of steamers on the cross-channel route, performing the passage to Milford in Wales with the same regularity as the Government mail steamers. The length of the Tuam and Clare line would be about eleven Irish miles; the branch to Ballinrobe might be made from Miltown instead of Clare, thereby avoiding the making of it through the property of Lord Lucan, who is said to be very exacting about his land. I should say his lordship, instead of being an obstructor, is an encourager of railway communication in the west of Ireland: witness the Great Northern and Western of Ireland, now called Lord Lucan's line.

The Waterford and Limerick Railway Company I have been in communication with, together with the chairman of the Great

Western of England (Sir D. Gooch, Bart.), on this subject; they are most anxious to fill up the gap in their system which occurs between Tuam and Claremorris. The Waterford and Limerick Company would take it in hands, provided parties who are more immediately or locally interested took shares in the undertaking. Sir Arthur Guinness and Capt. Knox (who are resident in this locality a great part of the year) are in favour of it. Sir Arthur writes to me saying—"I am in favour of a line from Claremorris to Tuam via Ballinrobe as the most perfect plan."

The most advisable plan for us to adopt is, without delay to organise an executive party here in the localities of Tuam, Claremorris, and Ballinrobe—we might be able to form a party having weight in the country,—then nominate provisional directors, a secretary, lawyer, and engineer, whose position would be but honorary, and another twelve months will not be allowed to pass over our heads without some action or desire being manifested in the furtherance of the topic of these imperfect sketches. The gap in the chain of communication between Tuam and Claremorris is a disgrace to the energy of the country.—Yours, J. N. GILDEA, C.E.

16th August, 1875.

#### CIVIC LYRICS.—No. XCII.

OH, SCAVENGER! OH, SCAVENGER!

(A Dublin Ditty.)

Oh, Scavenger! Oh, Scavenger! why do you work so slow?  
Art thou tired or lazy, friend, or weighted by your woe?  
Is it that you're badly paid, and do not care to sweep  
The nasty nuisance from our streets that lies six inches deep?

Oh, Scavenger! Oh, Scavenger! why idly gaze about?  
Do tell me if your throat is dry, or if your pipe's gone out?  
Or if the Foreman of the Roads is all that people say—  
A tip-top fellow with kid gloves, who swears and drives away?

Oh, Scavenger! Oh, Scavenger! how often does he come?  
And does he measure up your work by sight or rule of thumb?  
And does he bid you sweep the mud down every grating near,  
As horses are uncommon scarce, and oats uncommon dear?

Oh, Scavenger! Oh, Scavenger! how many hours a-day  
Do you and all your comrades rest? and what's your weekly pay?

And is your maxim—"Hang the Corp., their money 's not  
their own;  
The public pay us, and for them we're working here alone"?

Oh, Scavenger! Oh, Scavenger! farewell; and may your broom

Sweep cleaner, and its handle get some wider elbow room!  
And, though you're weak upon the limbs, each looker-on can tell

Your comrades are no better, so I wish you all farewell!

CIVIL.

#### CARLISLE BRIDGE.

We have so often written upon the subject of the improvement or rebuilding of this bridge, and the construction of a new bridge further down the river, we will for the present confine ourselves to a report of what is being done in the matter on the part of the Corporation and the Port and Docks Board. Early last week the Town Council sat in committee for the purpose of taking into consideration plans for the rebuilding or improving of Carlisle Bridge. Alderman Harris presided. Messrs. Thomas Turner, C.E.; J. Lanyon, C.E.; and C. Geoghegan, C.E., attended and explained their respective plans for the carrying out of the works in question. After considerable discussion, the committee agreed to recommend the council to adopt the plan of Mr. Turner. According to it the present bridge will be supplemented by iron structures on each side, so as to afford a roadway the width of Sackville-street and perfectly level with it. The present piers are to be preserved, and the portions of roadway added on each side are to be supported by iron cylinders filled with concrete and sunk into the river so as not to interfere with the waterways or the navigation of the river. The bridge will rest on three arches as before; the ironwork at each side is to be of an ornamental character, and handsomely designed turrets will rise at each of the four corners of the new roadway. Provision is

made for carrying out the intended main drainage arrangements near the bridge. The cost of carrying out this plan will be £34,422. Mr. Turner proposes first to construct the iron additions at each side, and when they are finished open them for traffic, while the central part, consisting of the old structure, is to be closed, and the necessary alterations as to level, &c., made in it to bring it into harmony with the rest of the plan. The Town Clerk was directed to communicate the decision at which the committee had arrived to the Port and Docks Board, and to forward to that body Mr. Turner's plans and specifications for their consideration, with an intimation that the matter could not be finally concluded without the assent of the council at large. On Thursday a conference between the members of the Port and Docks Board and the Corporation took place at the offices of the board. Mr. Jonathan Pim presided. Mr. John Byrne, on behalf of the Corporation, stated that if they attempted to expend money merely for the purpose of producing a city ornament they would meet with great opposition. That was one of the reasons why he was in favour of the improvement of the present structure rather than the erection of a new bridge. Mr. John Norwood referred to the objection made on a former occasion by the board against having a bridge lower down the river. Mr. Gibbon replied that an erroneous impression had got abroad that a bridge, if erected lower down, would interfere with the navigation of the river and the accommodation for shipping. The board entertained no such idea. On the contrary, they had at present under consideration the very question of the expediency of constructing a bridge further down the river. Mr. Parke Neville, City Engineer, said he did not approve of any of the plans except that for the erection of a new stone bridge, the cost of which he estimated at £80,000. Mr. Stoney's estimate for the work was £74,000. After a protracted discussion, in which some members of the Corporation expressed themselves in favour of having a new bridge, while others advocated the re-modelling of the present structure, the chairman said the board would consider most carefully the plans and specifications laid before them by the Corporation. They were as anxious as the Corporation that some improvement should be made in the present structure, and with as little delay as possible. They hoped that some steps might be taken in that direction this year, but of course they could not consent to anything that would not be adequate and permanent.

#### DUBLIN SANITARY ASSOCIATION.

At a recent meeting of the executive committee of this body they proceeded to consider the desirability of having some action taken in Dublin under the provisions of the Artisans Dwellings' Act, 1875. After some discussion the following resolution was unanimously adopted:—

"That this committee, having considered the provisions of the Artisans and Labourers' Dwellings Improvement Act of 1875, are of opinion that the act is specially applicable to the city of Dublin, and that no time should be lost by the consulting sanitary officer and the sanitary authorities in taking advantage of its provisions, which afford great facilities for the permanent sanitary improvement of the city."

In respect to the projected new street from Cork-hill to Christ Church-place, the provisions of the act will be of service; but, irrespective of any improvement already determined upon both on the north and south of the Liffey, there is an ample field on the part of the sanitary authorities in preparing to take advantage of the provisions of the new act. Before, however, any wholesale destruction of streets of houses where the working poor are located takes place, the question of providing cheap, well-built, and healthy dwellings for those likely to be dispossessed, must be considered. The working classes need dwellings near to the centre of their employments.

## ON BUILDING IN CONCRETE.\*

CONCRETE is composed of two distinct kinds of material.

1. The aggregate to be concreted or held together.

2. The matrix, or cementing material, mixed with the aggregate to hold the whole together in the homogeneous state called concrete.

The second is evidently the most essential and important, and there is no known material so valuable for this purpose as Portland cement.

Besides Portland cement, there are other valuable cementing materials. Lias and other hydraulic limes have been much used for foundation concrete, and even for building walls, but their use for this latter purpose has always been limited, and in modern times has almost ceased, because of the length of time required for setting and gaining strength. But the recent large increase in the cost of Portland cement led to experiments, and to the use of the best limes for wall-building concretes, with greater success than hitherto.

Selenitic cement prepared from lias and other hydraulic limes used together with a small proportion of Portland cement, has been found to make good wall-building concrete at a cheaper rate, and almost as quick setting, strong, and good in other respects as entire Portland cement concrete.

In districts where the best lias is found, it has been used without the selenitic process; but, together with Portland cement, producing very strong, excellent, and cheap walls. But the use of these limes in combination with Portland cement should only be attempted by those who thoroughly understand and know chemically and practically the exact conditions, proportions, and application necessary for successful use.

Portland cement, however, is now so well and honestly made, by so many good manufacturing firms, is so easily tested, and its correct treatment and use are so well and widely known,—and there is, besides, such a wide margin of strength in its favour, as commonly applied in concrete building,—that only ordinary care and intelligence are required to ensure success in its use for all purposes of concrete building.

The various well-known mechanical and chemical tests are very valuable when it is required to ascertain the exact strength and qualities of a sample of cement for a certain special purpose, or to prove a suspected cement. The best and most easily applied working test is to make up into concrete, in the proportions that are to be used in the actual work, some of the cement and aggregate that are on the site for use. A few hours are enough to enable an experienced workman to detect if anything is wrong in the mixture, and if any defect is suspected the cement should at once be subjected to the usual mechanical and chemical tests. But at least a week is required for these rough concrete test blocks to prove to engineer, architect, or employer that the concrete is quite good and dependable, and in the meantime the blocks should not be handled or disturbed in any way. Much harm is done, time wasted, and annoyance caused by the habit of inexperienced persons in picking and poking at cement samples before they have had time to get strength. To such persons quick-setting, light-weight cements would appear to promise good results; but it is now well known by everyone practically acquainted with the use of cement, that the well-burned, heavy, finely-ground, slow-setting cements are the best for concrete purposes.

Respecting the mechanical tests of neat cement, it has been found that some of these showing the highest results when tested for resistance to tensile and transverse breakage strains, have shown very inferior results when made into concrete, and tested for the same strains in comparison with cements that gave inferior results when tested neat, but which proved very superior in concrete. Neat cement reaches its full strength in a much

shorter time than a mixture of cement and sand, or gravel. Simultaneous tests, with varying proportions, show in favour of the largest proportion of cement, but the concrete mixtures gradually gain upon the neat cement, and ultimately reach and even surpass it in strength.

The aggregates useful for making concrete are very various, and easily obtainable in almost every locality. The economy of concrete is chiefly due to the facility it gives for utilising almost whatever material can be most easily obtained, and to the fact that some of the best concrete aggregates are mere waste, useless for any other purpose, or even troublesome and expensive to dispose of.

Pit and river gravels, with their coarse sands, beach shingle and sand, burnt clay ballast, broken stone, quarry waste, flints or pebbles, broken bricks, tiles, and waste pottery ware, broken slag, clinkers, and mill cinders,—all of these have been largely used, severely tested, and fully proved to be fit materials for making good substantial walls, floors, roofs, and stairs. The best aggregates are those which can be most readily made into a concrete resembling in texture and structure the natural conglomerate stones,—that is, it should be of all sizes and forms, angular and coarse fractured, so as to fit well together, and having all spaces between large pieces filled with smaller particles, and leaving no interstices.

The materials most readily fulfilling these conditions are old bricks, tiles, and pottery, rock and quarry refuse, slag and clinkers, all broken by Drake's patent stone-breaker, which, having been designed expressly for this purpose, produces fragments of various sizes from about  $1\frac{1}{4}$  inch cubes down to particles the size of coarse sand. With this material only a *minimum* of cement is required, sufficient to form a thin coating around every particle, and give continuous adhesion, thus making the strongest possible concrete without waste of cement, and leaving no interstices for percolation of water through the concrete.

Old pottery and tiles and vitrified fire-bricks, old building bricks, and stones that break with rough fractures, make the strongest concrete, as broken, proved by Mr. Grant's, Mr. Kircaldy's, and numerous other tests.

Flints and other stones breaking with smooth fractures, and also slag, make concrete a little strong, but still stronger than rounded gravel concrete. A fragmentary slag is produced at the Middlesbrough iron works, by running the molten slag as it leaves the furnaces on to revolving discs, upon which jets of water play, thus causing the slag to break up into small pieces about the size of almonds and Spanish nuts. With this fragmentary slag, we have constructed some of the most satisfactory concrete buildings yet done. New master's houses at Marlborough College (Mr. Street, architect) were built with broken flint, concrete, and lump chalk packing. Many stones too soft and liable to decay, if used as ordinary building stones, make excellent concrete, the cement protecting them from the influence of weather; and many of them containing metallic oxides and large proportions of soluble silica appear to unite chemically with the cement and form almost indestructible hydrosilicates.

Next in order of merit, after broken bricks, I place burnt clay ballast. It has the same advantages of tough surfaces, absorbent nature, and variety in sizes; but before using this material it is necessary to prove that it is thoroughly well burnt. Stiff clays may be burnt with about five pecks of coal to the yard cube of ballast; but light, loose, and shaley clays require more coal; some can hardly be burnt with double the quantity of coal. That most excellent concrete can be made with burnt clay, you can see by examining some pieces before you, which have been cut from the concrete of my house during alterations. The cost of making clay ballast is from 1s. to 2s. 6d. per cubic yard. Land, water, or sea gravels are the most ex-

tensively used of all concrete aggregates; although, for reasons stated, I hold them to be inferior to some other aggregates, they all make exceedingly good concretes.

The flat and angular land gravels, from not being so much rounded and polished by attrition, make the soundest concretes, provided they are free from loam or clay. The addition of a sufficient quantity only of clean sharp sand, to fill the spaces between the larger rounded pieces, makes the best gravel concrete; but care must be taken that too much sand is not used, otherwise the distribution of cement is so much greater that a larger proportion is required. Care must also be taken that very fine sand be not used at all, for this is simply an adulteration of the cement that will cause very poor concrete. Where sand cannot be easily obtained, good and strong concrete is made with round gravel only. The cement, uniting the particles of gravel only, is not diluted or over distributed by sand, but uniting the particles of gravel at their points of contact only. This kind of concrete has been proved by testing to be capable of resisting much greater crushing force than ordinary bricks. But surface cementing is necessary to prevent water from entering and running through between the particles of this kind of concrete.

Respecting every kind of aggregate, it is of the greatest importance that it should be free from dirt, dust, or earthy matter of any kind, and any defects of this sort must be removed by washing.

Respecting the correct proportions for mixing, it will be seen that a considerable variation is possible, from the varying nature of the aggregates, and I have used from one-third to one-twentieth of cement, but the proportion which has been found sufficient to give a coating of cement to each particle of ordinary gravel concrete is one-eighth, and this is the proportion that is almost invariably used. For roofs, floors, stairs, and other special work, one-fifth or one-sixth cement is used, in order to induce a more rapid setting and strengthening, to ensure a thorough coating to every particle, and that there may be no unfilled spaces; one-eighth of cement is sufficient for wall building. A larger proportion may be considered waste.

A few months ago a piece of concrete was shown to me as a sample of good rich concrete. The joint of cement between the pieces of gravel was from  $\frac{1}{4}$  in. to 1 in. in thickness. I could only remark that if the best concrete is a solid mass of neat cement, then the adulteration by means of gravel has not been carried to a great extent in this sample. The water used for mixing concrete should be clean. It is possible to destroy much of the strength of cement by using dirty or polluted water. Sea-water has not been found injurious, but is supposed to delay the setting. Respecting the quantity of water to be used, there is more danger to be apprehended from using less than from using more than the right quantity. The correct quantity of water is of course sufficient to convert the cement into a thin paste that shall completely coat and cause to adhere all the particles of the aggregate. With absorbent aggregates extra water must be used, or the absorbent materials should be watered before mixing with cement begins. Allowance must be made for evaporation in hot weather.

I have seen concrete that had apparently sufficient water when mixed, utterly spoiled by rapid evaporation under a hot sun. Unless so much water were used as to wash away the cement, or make it so thin as to cause it to run through the aggregate (which is almost too absurd to consider possible with some workmen), the only danger from too much water is to delay the setting, because the cement must first exude the excess of water not required for hydration. I prefer concrete mixed by hand, as it is important to have the materials all mixed dry before mixing with water. Crystallisation or setting begins at once with the addition of the water, and as little time as possible spent in thoroughly mixing and placing into the mould or apparatus after water has been added. There are

\* By Mr. Charles Drake. Read at meeting of Civil and Mechanical Engineers' Society.



many various concrete-mixing machines, most of them being unnecessarily complicated, the best being a plain revolving cylinder working horizontally. Concrete mixed in machines is generally over-mixed after the addition of water. For the same reason that the concrete should be at rest, in the place it is to occupy permanently, as soon as possible after mixing, no ramming should be allowed. At once on being placed into the mould it should be prodded and compacted to the surfaces, around and between packings, around fines, &c., and should then be left undisturbed to take full advantage of the setting powers of the cement. Where ramming is used, not only is the setting interfered with, but the adhesion is destroyed, of the comparatively new concrete.

There remains one other point to notice respecting materials, viz., "packing" or "core-filling." This consists in the placing of large pieces of hard materials—stones, slag, old brick, &c.—into the midst of the concrete in the walls when building. The object of using packing is economy. In walls made of concrete only, the proportion of cement to the whole bulk of the wall is one-eighth. But in a packed wall, where, say, one-third of the more costly concrete is dispensed with by packing, the proportion of cement to the bulk of walling is reduced to one-twelfth. There is also economy in labour; the quantity of mixed concrete being less, very little care is required in the use of packing to ensure as firm adhesion between the packing and concrete as between the particles in the concrete itself. It is probable that in a thick wall with packing the concrete sets and hardens sooner than if the wall were all concrete.

The care required in the use of packing consists in having it free from dust and dirt, and when absorbent materials, such as old bricks, are used, these must be made damp enough to secure adhesion, otherwise the dry packing will absorb moisture from the adjoining concrete, and thus prevent adhesion, and weaken the concrete. Care should also be taken to place the pieces of packing at least 1½ in. apart and in from the face of the wall, so that each piece shall be surrounded and made to adhere to each other by concrete. The perfect adhesion between packing and concrete and the strength of packed walls have been abundantly tested and proved, and I presume it is not necessary to occupy time in stating cases.

(To be continued.)

#### FEUDALISM IN THE CIVIL SERVICE.\*

THE matters treated of in the following paper will be of interest to such of our readers as are connected with the Civil Service:—

Those who affect to believe that national practices, which are in antagonism with the moral life of the nation, can lead to anything but confusion, show their utter incapacity to estimate aright the subject they wish to master; and, if honest, "they have their eyes in the back of their head," their observation only misleads, and their deductions are necessarily at variance with fact and experience. They are, in reality, the blind philosophers of an incapable and unreliable school. As applied to almost every subject, as exercised in almost all departments of social thought, the tendency of the national mind of Englishmen is to run parallel with the principles and precedents of his country, its love of national honour, its love of liberty, and its benevolence. Instinctively holding *chicanery* as a thing to be condemned, the English mind has generated a sentiment and a character, which has added a world-wide prestige to the name of Briton, that nothing but moral dignity could have achieved, and, subject to these healthy influences, laws have been made and administered, and the great institutions of the State have maintained their status undisturbed and intact. As the marked exception to this healthy progress,

\* From the *Civilian*.

the Civil Service of Great Britain must be noted as the only institution from which civil right is excluded, and where tyranny and oppression reign almost uncontrolled, and in which, as a necessary consequence, "complications" continually arise, to embarrass the working of the machinery of official life. We can assure our readers that ours is not a mission of complaining and fault-finding; we see a patent, fundamental evil, and, although resolutely determined to respect authority in its lawful exercise of power, the duty demanded by our very responsible position requires that we "cry aloud and spare not," in the exercise of an honest censorship, and thereby best promote the true interests of the public in aiding to secure a healthy, before we can hope to see a contented and effective, Departmental System. We shall therefore feel no little surprise if the references we are about to make will not more than justify the very uneasy apprehension with which we regard the cruelty that may be, and has been practised, in the name of the public throughout the Civil Service.

In connexion with the business of the Local Government Board in Dublin, it has lately come to the knowledge of the public that a Mr. Brown, senior clerk in a department of the Metropolitan Police Court, was discontinued without reason assigned or pension given, after a long service. He had no means of meeting imputations, because none were made; he could not rebut charges, as none were alleged; he had no right to demand an inquiry, and none was granted; and all the while some secret charges, some unknown imputations, barred for a time the employ offered him in another public position; and these imputations are urged to the present day as a reason for withholding his pension earned by, we believe, thirty years' service. If possible, more startling still is the case of Mr. Robinson, late of Her Majesty's Stationery Office in Ireland, brought incidentally to public view before Her Majesty's Judges of the Commission Court, Dublin. He was appointed under the old Superannuation Act, and had all but completed the term required to entitle him to £600 a-year pension, when he was summarily discontinued and his pension withheld; but of grace an allowance was granted him of £200 a-year. This allowance, as stated in his evidence given on oath, "he offered to relinquish, if he were not able to prove before an inquiry, for which he applied in vain, that no charge could be proved against him, and no reason could be shewn to justify the withholding of his pension."

To us it matters little to know that the enormity in the case of Mr. Brown has been pressed on the attention of the Chief Secretary by Mr. Sullivan, M.P., although we desire fair dealing and justice throughout the Service to all who are aggrieved; but beyond and above all considerations, we affirm that the system that consigns a public servant, in the one case after nearly 50 years' service, and in the other after 30 years, to the degradation, as well as the forfeiture of his pension and good name, without investigation duly had and verdict truly found, is an unmitigated outrage upon moral and legal rights, is an offence to the public, in whose name the wrong is perpetrated, is a flagrant scandal to the entire Service, and will tend to shake to its very foundation the confidence of the public in the administration of the affairs of the Treasury.

We had thought that the intelligence and administrative aptness of Mr. Herbert Murray, Treasury Remembrancer, Dublin Castle, would have sufficed to herald a reign of peace and contentment to the Service of the sister isle, and we joined with many in the hope that Mr. Murray would relieve the Service from the imputation that its discipline resembled the definition of a line in being "length without breadth," but we must own that in the cases cited, a breadth of harshness seems to have been perpetrated at the cost of justice, from which we very earnestly desire to see every Englishman dissociated; as we see the total subversion of the simplest

principles of right and justice, involved in the cases of Mr. Robinson and Mr. Brown.

Nor can we avoid perceiving the pernicious effects likely to be produced, even in a much wider area than the public service, by the serious abuses referred to, inasmuch as our quick-witted and observing fellow countrymen in Ireland will at once, if we mistake not, "twig" the moral in favour of "Home Rule" thus pointed out. They cannot indeed fail to infer from the incidents, that any change could not but be an improvement upon a system with which so much wrong and rottenness are associated. We shall, nevertheless, hope to learn that, prompted by a higher motive than the fear of remote contingencies, the vigour and decision of Sir Stafford Northcote will overrule the conclusions come to by his subordinates, it may be, as it too often has been, in hot haste, lured by the bait of even a *small Exchequer saving*, and direct that justice be done by an honest court of inquiry.

#### THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

THE Association opened their annual congress this year at Evesham, a town of much antiquity, situated upon the Avon, in Worcestershire. An address of welcome was presented to the Association by the Corporation, followed by marked hospitalities.

The Marquis of Hertford delivered an excellent inaugural address, touching upon historical matters connected with the town, and archæological matters in general. He concluded his observations by remarking that the society which he had the honour of addressing "was established in 1843, and bears the name of the original society from which the Archæological Institute sprung. Perhaps England is rich enough and broad enough to maintain two bodies similarly engaged in the useful pursuit of antiquarian knowledge; but I hope you will forgive me expressing a hope that those who know more about it than I do will, before long, see their way to reuniting the two societies, and so make each more practically and beneficially useful."

Lord Hampton in proposing a vote of thanks to the marquis for his address, spoke at some length, adding, in conclusion, that he rejoiced to see the noble residences in this noble land occupied by those of ample means and ability. There was a time when Ragley was only a name, now it was a reality. The Association had done well in choosing Evesham for its place of meeting, and they could not have done more wisely than in soliciting the noble marquis to preside over them, and he was glad that he had thought it his duty to accept it.

Mr. George Godwin, F.R.S. (editor of *Builder*), in seconding the motion, was glad to hear of the number of societies now at work, because they recognised in these societies their own offspring. He alluded to the necessity which existed for Sir J. Lubbock's bill, and urged that all local societies should petition in its favour. He also pleaded earnestly in favour of the preservation of Cæsar's Camp, at Wimbledon, which was in danger of being encroached upon and wiped off the land by the inroads of speculative builders.

After the meeting, the party proceeded to the battle field, in Abbey Manor grounds, where an obelisk had been erected, bearing an inscription recording how the battle was fought on the 24th of August, 1255. Here a brief account of the incidents of the battle was given by Mr. New.

In the evening a dinner was given in the Town Hall, the marquis presiding, and several speeches were made by the chairman, Lord Hampton, Sir E. Lechmere, Mr. George Godwin, Mr. Brock, Mr. George Wright, the Vicar of Evesham (the Rev. J. W. Holland), and others. Mr. Holland expressed a hope that a monument to Simon de Montfort might one day be erected upon the spot where he died, and a subscription to begin

the movement was at once offered by a member of the Association.

On Tuesday, Stratford-upon-Avon, the birth-place of Shakespeare, was visited, the buildings in the vicinity, the house of the great dramatist, and the registers examined. A very pleasant day was spent, papers being read in the evening by members of the Association.

At the first evening meeting for papers, a very interesting memoir, by the Rev. M. E. C. Walcott, B.D., F.S.A., was read by Mr. Blashill, on "The Mitred Abbey of Evesham." Other papers on the same subject were subsequently read—one by the Rev. N. G. Batt, M.A., Vicar of Norton, on "The Abbey of Evesham, illustrated by the Lives of a Triad of its Abbots."

The third day included a visit to Buckland, the party proceeding to the church, where they were met by Mr. J. O. Halliwell-Phillips, who, as lord of the manor, welcomed the visitors. Mr. J. Robinson read here a short paper on the history of Buckland. In the afternoon Mr. Isaac Averill read a paper prepared by Mr. J. O. Halliwell-Phillips, on "The History of Broadway."

On Thursday, Hailes Abbey, Sudeley, and Winchcombe were visited, a paper on the former being read by Mr. Loftus Brock. After Sudeley Castle had been visited, Mr. Edward Roberts read a paper descriptive of the history and architectural features of the castle.

On Friday, Pershore, Deerhurst, and Tewkesbury were visited, and a paper on the latter was read by Mr. Blashill.

On Saturday the modern mansion of Ragley was thrown open; all holders of Congress tickets were the invited guests of the Marquis of Hertford, and after two o'clock not fewer than 200 visitors thronged the saloon, galleries, and terraces, where they were received by the Marquis and Marchioness, the Earl and Countess of Yarmouth, and a distinguished party of guests. A sumptuous repast followed.

Everywhere during the week the Association were received with the greatest welcome, and the hospitalities were marked. The objects the Archaeological Society had in view must have been benefited by the successful congress of this year, which led to many visits to interesting historic buildings, and to the reading of many valuable papers on local history and antiquities.

#### HANDICRAFT AND HANDICRAFT TOOLS.

WHAT follows is from the first of a series of lectures delivered recently by the Rev. Arthur Rigg, M.A., at the rooms of the Society of Arts, London. From this and whatever portion of the remaining lectures we may give, we shall only omit those passages which would be difficult to properly understand without the diagrams that accompanied them. The lectures, on the whole, were admirable, but we are almost tempted to add a few words here and there in further illustration of tools touched upon or altogether omitted. Of course it was almost impossible for Mr. Rigg to treat of all the handicraft tools in use. He had to select the chief leading examples for his lectures, which were properly named—"The Material, Construction, Form, and Principles of Tools and Contrivances used in Handicraft." We may bracket an odd paragraph throughout the lectures according as we reproduce them:—

##### ON TOOLS USED IN EARLY TIMES.

In a course of lectures on mechanism delivered in this room during the winter of 1871 and 1872, reference was made to the place man should occupy in a general zoological classification. You were then reminded that to Aristotle, who died 322 B.C., we are indebted for the first attempt at accomplishing such a classification. The

distinguishing characteristic of man regarded for this purpose alone was the selection by Aristotle of a feature which is especially appropriate to the present course of lectures. Aristotle called man "a tool-making animal," for he could not find any other group of animals who made special implements and used them as we do tools. So generally is this view of man accepted, that in recent times the inferences from it are wider and more extended than Aristotle could have anticipated. For antiquarians now admit (without controversy) that wherever on or under the surface of the earth "tools" are found, it is clear that there men have once dwelt.

The first traces of tools are said by geologists to be met with in the post-tertiary strata, and accepting the statements of those to whom public opinion assigns a competency to read and interpret the writing which geological pens have inscribed upon the materials of this earth, the inference from such a fact is that man's existence may be placed so far back that centuries are insignificant periods of time.

Sir Charles Lyell (from such data as are now referred to) speculates that at least two hundred thousand years have passed since implements were formed, evidently to be used by those who lived at that time. The date of these implements is unmistakably clear; they are found in the respective geological strata, not in solitary isolation, but in groups, and under circumstances, and in such various localities, as effectually to dispose of any suggestion of fraud or collusion. These silent evidences of facts are long precedent to all human traditions. History, as history (not the traditional tales or poetry of even a far-off ancestry), written in a spoken language, and in what may be called intelligible alphabetical characters, and of such a nature as deals with man in his social state, and therefore may be expected incidentally to allude to tools, does not carry us further back than the days when Herodotus (who is called "the father of history") repeated at the Olympic games the history he had written. Writings of a non-historical social character prior to those of Herodotus are far from scarce, but an attempt to write history proper in alphabetical characters had not previously been made.

Although this alphabetical history is so recent, compared with the interval that must have elapsed since some of the tools now in our possession were formed, yet we are not without the means of assured penetration into many years before alphabetical history commences. There is a precedent pictorial history, rude compared with what we call pictorial, but for our purpose very superior to that conventionalism which too often stamps its defacing hand upon the truthful and graphic simplicity of undisciplined art. This pictorial history has been written on the monuments of Egypt, and the walls of Herculaneum and Pompeii, in a form which the enlarged diagrams in the room illustrate. For our wants at present Egypt, Herculaneum, Pompeii, and Rome will supply not only what may be truly called pictorial, in the clear delineation of tools actually in use more than 3,000 years ago, but they add in some cases real history in that they have entombed the very tools themselves.

If we penetrate still further back, then even pictorial history fails us, and the implements alone of these far-off generations offer a silent evidence from which to form a diagnosis of the mechanical operations of the human race.

Although the question of dates may come before us again, it will not be without value if even now a preliminary conception be formed of the times comprehended in what has already been alluded to.

The first written alphabetical history is by Herodotus, and dated at 445 B.C. Assume that he might with confidence avail himself of the traditional history of three preceding centuries. Then alphabetical history carries us back for (1875 + 445 + 800) 2,620 years from this time. Pictorial history carries us back for (1875 + 1740 + 800) 3,915 years

from this time. Now, records (taking the marginal dates in the English Bible as our guide) fix the Deluge at 2,848 years B.C., i.e., the Deluge took place (2848 + 1875) 4,223 years from this time. Our pictorial history then carries us back to within (4223—3915) 308 years of the Deluge.

Abraham died 1822 B.C., and Joseph was sold into Egypt 1729 B.C., i.e., Abraham died (1875 + 1822) 3,697 years ago. Joseph was sold into Egypt (1875 + 1728) 3,604 years ago. Consequently, pictorial history takes us back hopefully to the days of Abraham, even if three precedent centuries be not granted, and certainly to those of Joseph and his brethren. Job is supposed to have lived (1875 + 1520) 3,395 years ago, i.e., 29 years before the Israelites left Egypt.

Whatever information we consider we possess, prior to the dates now given, may "so far as tools are concerned" be called pre-historic. This word "pre-historic," has, however, a clearly defined meaning with geologists. If one turns to a scheme of geological strata, then those strata found above the tertiary are divided into three classes—the post-glacial, pre-historic and historic. In the former (post-glacial) there are not any traces of handicraft work. In the second (pre-historic) there are found remains of canoes made of trees, of dwellings erected on piles, implements made of flint and stone, and fragments of charred wood. When speaking of the third or historic period, even then geologists do not refer to such written history as we understand by the word; but to the foregoing implements they add such as are made of metal. (With the flora and fauna of these periods we are not concerned.) Each may for himself decide how many years are comprehended in these three geological periods.

For our purpose these are three "ages:" one in which tools were of stone; and this is again subdivided into two periods—the palæolithic or ancient stone period, when the stone tools were left with rude and rough exteriors; and the neolithic or recent, when there was somewhat of an external finish or polish on the tools. A second age in which tools are found formed of pure copper or bronze, the pure copper tools being so rare that they are comprehended in the term bronze. A third age in which tools are formed of iron; these introduce us to the age in which we live.

It must not, however, be assumed that these ages are markedly distinct. It is more than probable that whilst in one part of the world men were using bronze, in another part they might be using iron. Thus much, however, is certain, that in times to which even geologists might hesitate to apply the term "recent," the smelting of copper and of tin were known, and the combining of these metals to form the hardest bronze made and used at the present time, was also practised. An analysis of these ancient bronze implements shows that the copper is alloyed with from 5 to 10 per cent. of tin.\* Metallurgists now report that this combination secures the maximum hardness combined with toughness, and the absence of a crystalline character. If more tin be added, a file will produce a granular rather than a fibrous abrasion. Therefore the men in this geologically pre-historic bronze age were in the alloying of copper as wise as we. Whether they relied upon the proportion of the parts of the alloy, or whether they had means for tempering the tool produced, as we temper steel, is not clearly ascertained.

An examination, in the course of these lectures, of such examples of tools and implements as relate to the first two ages, in a brief and cursory manner, may suffice to put before you the state of man's skill in handicraft before either the pictorial or alphabetical history of the human race commences. Where these latter histories commence our interest increases, because we shall find we have passed from handicraft tools, of whose works we have little or no evidence, unless

\* Analysis of Egyptian bronze implements gives 94.0 copper, 5.9 tin, and 0.1 iron.—"British Museum Guide," p. 29.

rude carvings be considered as works, to a class of tools and works produced so like our own, that an inspection of them seems to blot out the time which has elapsed since their formation.

There is, however, another source of information which materially helps us in supplying inferential, if not actual knowledge, with regard to the first formed tools. The traditions of a people as well as the customs and practices of their forefathers are preserved and repeated, generation after generation, by savage and altogether uncivilised and isolated races of men. Hence, amongst savage tribes and roving barbarians may be found at this day tools altogether different in form from those amongst civilised people. Such tools may be, and probably are, derived from ancestors of what we may call geological antiquity.

Now, in the Pacific Islands, in North America, Australia, Africa, and elsewhere, races of men at present exist amongst whom the use of metals is unknown, and whose implements correspond exactly with those found mixed with the fossil remains of extinct animals. Knives of flint are mentioned by Herodotus as used in Egypt in his day for embalming—many such knives are found in the tombs. These knives were employed long after bronze and other metals were general. Such records confirm the suggestion that in looking amongst secluded races we shall find the tools of their ancestors' ancestors. Hence the connection in this lecture of pre-historic times and (so called) savage races. I say *so called*, for let no one despise the handicraft contrivances and skill of the untutored. Those who hold themselves highest are far more indebted than they publicly confess to uneducated men of clear thought, cunning resources, singular ingenuity, and much handicraft skill. It is well known that even in our own times the earliest germs of many most important inventions and discoveries have their origin in the suggestions of hard-working but illiterate artisans.

(To be continued.)

#### LOST AND PRESERVED CIVIC ANTIQUITIES AND PROPERTY.

THERE was exhibited at the late International Ball, given by the Lord Mayor of London at the Guildhall, a number of objects of art and handicraft of historical interest and value, the property of the City Companies, the modern nominal representatives of the ancient guilds of trade. Fifteen City Companies contributed to form this interesting exhibition, in which many rare and curious relics of civic history were found. The five silver-gilt gamecocks of the Skinners' Company were there, as also a silver peahen of equal merit as a piece of antique handicraft. The Clothworkers lent their well-known Pepys Cup, or rather, if the secret may be whispered, an admirably perfect reproduction or *fac-simile* of the worthy secretary's gift to his guild; for that gift itself has been worn so thin in the convivial service of Clothworkers now at rest that it can no longer make its appearance in public. The same Company had sent a drum salt-cellar of great manufacturing merit and of respectable age, its date being 1660. Small but choice was the contribution of the Cordwainers, their set of six small silver candlesticks being fine enough to win the admiration of any collector. The Henry the Eighth and Charles the Second covered cups, with their jingling bells, belonging to the Barbers' Guild, were foreground objects; but the most central place in front of the precious array was given to the Milkmaid of the Vintners, whose 'prentices have often found it no easy task to drink from the inverted farthingale of the little figure, and from the swinging pale she bears aloft, before attempting the final feat of "kissing the maid." The oldest piece of plate bearing an inscribed date was the goblet in possession of the Innholders' Company, round the rim of which drinking-vessel runs

the legend, "This is the gift of Grace Gwalter, in remembrance of her deceased husband, John Gwalter, 27th February, 1599." But there were far older pieces among that priceless collection—priceless in historical value and interest, that is to say, for the king of metals had no representative on the whole buffet, and all was silver in its native tint, or gilt. The oldest, probably, was one of the mace-heads of the Saddlers' Company, surmounted by its crest, the horse passant; a finer and far more ancient specimen than the same company's larger emblem, gilt, and showily displayed. Not later than 1186 can be the period of that first-mentioned piece of silversmith's work. There were the famed college cups of the Drapers' Company; the Leigh cup of the Mercers; and a laboriously finished wagon and tun, of the year 1500, lent by the last-named guild. The Merchant Taylors and the Grocers sent a quantity of very massive plate, mostly modern, and of good design. So, too, did the Fishmongers, in whose quota, not on the buffet, but on a sideboard, was the Doncaster Shield, formerly the property of the Marquis of Hastings, having been won by his horse The Earl. Not that the Fishmongers depended alone on modern magnificence for their part in this curious show. They exhibited their merman and mermaid ewers, both old, though widely differing in age; six high gilt cups of various epochs; and a dolphin salt-cellar of quaint design. The most notable relic, however, of those ages when the salt divided social ranks at table, was a *cinq-cento* cellar given to the Vintners by their Master, John Powell, in 1702.

Many of the objects exhibited which we have not named, were well worthy of inspection on the part of antiquary and archaeologist. Among our Irish collectors and antiquaries, there are some who would be pleased at the sight of these civic relics of the past. And it may be here asked what has become of similar objects of art and handicraft that once belonged to the City Guilds of Dublin, which were abolished by the passing of the Irish Municipal Reform Act? How many of these objects came into the possession of the present Corporation? or, can any one answer how many still living members of the old Corporation of Dublin are there, or were there, who could plead guiltless of being possessors of property once belonging to the city? It is a well-known fact that there were objects of value in the possession of several of our old City Guilds—books, minute books, pictures, paintings, property deeds, &c.; but the moveable property all disappeared from the halls of the guilds shortly before they ceased to exist, and the deeds and other documents in the possession of the officers of these bodies were either hid or destroyed. We believe that in the libraries of the sons and grandsons of the members of the old Corporation, or among other members of these families, property could be unearthed at present to which they have no claim. What concerns us more is the unravelling of the mystery concerning the trust deeds of those Dublin Guilds, of land and house property bequeathed for charitable and educational purposes. If we are not much astray, there are some men living in this city who held official appointments under the old Corporation of Dublin, and who doubtless could afford the public information as to the property once in possession of the City Guilds. We shall not be invidious at present by pointing out names, but we hope these men, before they shuffle off their mortal coil, will unbosom themselves.

There were large sums bequeathed in the sixteenth, seventeenth, and eighteenth centuries by Dublin citizens—male and female, Catholic and Protestant—for various benevolent uses, but a consultation of a Dublin directory at the present day shews how little remains to us of the benevolence of our forefathers.

It is no untruth to say that there are in private hands in Ireland, at the present hour, lands and other property once bequeathed for charitable purposes, and others have grown

rich long since by the sale of charitable property and its conversion into the funds upon which they are living. Who will help us in our laudable attempt to wrest back for Dublin its hospitals, its asylums, and its schools, the property that has been filched from her, and compel the restoration of public records as well, that would fill up a long blank in our municipal history?

#### THE GUINNESS TESTIMONIAL.

THE statue of the late Sir Benjamin Lee Guinness, Bart., intended as a memorial of his munificence in restoring St. Patrick's Cathedral, has been completed, and placed within the railings in front of the southern entrance to the cathedral. The committee formed for the purpose of carrying out the testimonial was formed in February, 1865, during the lifetime of the late Sir Benjamin Lee Guinness. The statue, which is the work of the late Mr. J. H. Foley, is of bronze. It represents the late lamented deceased in a sitting posture. The attitude is easy and graceful, and the likeness perfect. The figure, which is a little more than life-size, rests on a pedestal of Aberdeen granite. The pedestal has been erected by Messrs. Sibthorpe and Son, of Great Brunswick-street. The cost of the statue was £1,000, and of the pedestal £100.

#### THE MAYO TESTIMONIAL.

THE equestrian statue of the late Lord Mayo, Governor-General of India, intended for Calcutta, has been successfully cast in bronze. The order was given to Mr. Thos. Thornycroft after a competition in June, 1873, so that the statue has been modelled and cast in less than two years.

#### THE WHITWORTH TESTIMONIAL, DROGHEDA.

AN adjourned meeting of the subscribers was held on the 23rd ult., at which final arrangements were made for the erection of the proposed memorial fountain to Mr. Benjamin Whitworth, M.P. It was decided to adopt the modified design originally submitted by Mr. P. J. Dodd, C.E., and the tender of Messrs. Pettigrew and Son, of Navan, was accepted at £450. The site to be opposite the Tholsel. The dimensions of the fountain, according to the altered plan, will be 12 ft. at base, and 31 ft. high.

#### BOOKS RECEIVED.

*An Elementary Treatise on Steam and the Steam Engine.* By D. Kinnear Clark, C.E. London: Lockwood and Co.

THIS is a re-cast of a Treatise on Steam by Mr. John Sewell. It is now brought out as one of the "Weale's Rudimentary Series," of which it is numbered 190. "Much of what was, in the original book, of but general interest, or had become obsolete in consequence of the advances of scientific investigation and of experience, has been replaced by matter more directly interesting to the steam engineer." The original "Historical Notice of Steam and the Steam-Engine," by Mr. Sewell, embracing a period of over two thousand years, is reproduced in the present issue, and is highly interesting. The book is well printed, and is illustrated with 150 wood engravings.

*Studies in Design.* By Dr. Ch. Dresser, Ph.D., F.L.S., &c. London: Cassell, Petter, and Galpin.

THE tenth part of this very elaborate work is before us. Plate 28 is a design for central ornament of a ceiling, in the Arabian style; it is printed in gold and colors. The other plates are of dado-rail ornaments and ceiling decoration.



## THE SOCIAL SCIENCE CONGRESS.

At the forthcoming Congress, to be held at Brighton, the following have consented to deliver addresses in the various classes of exhibits at the Exhibition of Sanitary and Educational Appliances in connection with the Congress:—1. Warming, Ventilating, and Lighting—Captain Douglas Galton, C.B., F.R.S. 2. Domestic Appliances and Economic Apparatus—Mrs. Amelia Lewis. 3. Sanitary Architecture and Appliances—Mr. George Godwin, F.R.S. (editor of *Builder*). 4. Sanitary Engineering and Methods of Disinfecting—Mr. Baldwin Latham, C.E. 5. Food and Clothing—Dr. William Hardwicke. 6. School Furniture and Educational Apparatus—Professor W. B. Hodgson, LL.D. The mayor will preside at the opening of the exhibition, and Sir J. Cordy Burrows will address the assemblage. The Congress promises to be an attractive one, considering that it is this year held in the "Queen of Watering Places." We hope, however, that it will be more than merely attractive by being eminently useful in the interest of Sanitary Reform.

## NOTES OF WORKS.

The new R. C. Church of SS. Augustine and John, Thomas-street, was dedicated on Tuesday, 24th ult., by Cardinal Cullen. Although in progress for over fifteen years, it is still in a very incomplete condition. Two illustrations of its exterior appeared in our volumes for 1861 and 1866. The plan comprises nave and aisles, with apsidal termination. Its greatest internal length when complete will be 180 ft.—at present it is only 130 ft.; the width, measuring through transept, is 89 ft.; the nave is 36 ft. in width; and the aisles, from the centre of the columns to the wall face, measure 16½ ft. The aisles will be continued round to the back of the high altar. The groined vaulting of roof, springing from carved stone corbels between the clerestory windows, has an effective appearance. The arches of nave are supported by massive pillars of Cork red marble over 20 ft. high. The principal entrance is through a deeply-recessed double doorway in centre of façade in Thomas-street, the tympanum of which is carved with a figure of St. Augustine. Over this door is a fine eight-light traceried window of geometric design, the detail of which is particularly good,—the moulding on mullions and tracery of a very bold and varied character. The belfry stage of tower is very effective; on plan it is a parallelogram, its length being equal to double its width. A steep roof crowns the belfry, and is terminated at a height of 220 ft. by a rich cresting and cross. The designs were furnished by the late Mr. E. W. Pugin in conjunction with Mr. G. C. Ashlin, of this city; and under the supervision of the latter gentleman and Mr. J. O'Brien, clerk of works, the building is being carried on by day-work.

The new Dominican church, Queen-street, Newry, erected from the designs of Mr. G. C. Ashlin, will be dedicated on Sunday, 17th prox. With our number for 15th February last we gave a lithograph of the interior, and also some particulars.

Messrs. W. Browne and Son, of Camden-street, have erected a fine organ in the Catholic Church, Leighlin Bridge, County Carlow. It is enclosed in a neat Gothic case, made of pine, stained and varnished. The front pipes are very beautifully illuminated. The instrument is of superior workmanship and tone, and is finished with the greatest nicety throughout. The materials used are of the best description. All the metal pipes, reeds, as well as every detail, have been made in Messrs. Browne's factory.

The new Church of St. Luke at Douglas, County Cork, has been consecrated by the bishop of the diocese. A local gentleman, we understand, gave his professional aid free of charge in its erection. Several stained glass windows [from Munich?] have been

presented, besides handsome contributions in money. We have not heard the name of the contractor for the building.

An Industrial School has been opened at Limerick, and has been certified as ready for the admission of boys. The building is 100 ft. in length, 80 ft. wide, and about 60 ft. high. There is also a range of workshops connected, in which the various trades will be taught.

We are informed that arrangements are being completed for the erection of a skating rink in this city, and that the concession to use the Plimpton patent roller skate has been secured through the patentees' agents, Messrs. Fahie and Son, Nassau-street.

## AN ARTIST ON ENGINEERING CONSTRUCTION.

In a communication to a morning journal, on the subject of "Carlisle Bridge," M. A. H. (Michael Angelo Hayes, we presume) expresses his opinion that—

"The ugliest structures that have been erected during the present century, and especially since railroads have overspread the land, are designed and constructed by engineers, who seem as a body to be utterly bereft of taste and artistic feeling!"

In another part of his letter he throws out a suggestion to those of our citizens who have money to spare:—

"I feel assured that if the citizens interested in the beauty of Dublin City were to subscribe to bring the Corporation and the Port and Docks Board to a champagne lunch on 'Shannon's banks,' we would hear no more of the cylinder project!"

Who will head the list?

## THE UNPAINTED PORTRAIT.

"He would leave office as he entered it, as plain P. P."

Paint no likeness of our Mayor,  
Grandly sitting in his Chair.  
Linn no large portrait of him—  
Solemn, grave, or gay or grim.  
Artist skill could never trace  
All the beauties of his face,  
Handsome head, and manly form,  
Burning tongue, and heart red warm.  
Cincinnatus of the West,  
With the ploughshare for his crest,  
Emblematic of the sod  
Which his great forefathers trod,  
As he entered office, he  
Will leave it, just a plain P. P.—  
Not a Parish Priest or Saint,  
But a "Beauty without paint!"

C. C.

## QUERIES ANENT CARLISLE BRIDGE.

A "LOVER of Justice" has addressed to us the following queries:—

Did the Lord Mayor and Council of the Corporation meet the Port and Docks Board to discuss the question of the bridge, and, finding that no plan had been approved of by the City Engineer, was the adjournment made in order that at their next meeting the plan approved of by the City Engineer should be recommended for execution?

When the Corporation again met the Port and Docks Board, did they recommend a plan which was not approved of by the City Engineer?

Had the plans so recommended been altered within the interval of the two meetings, so as to resemble more closely the mode of construction adopted by Mr. Geoghegan, in order to insure full headway for navigation under the bridge, as exhibited on his model now nine years before the public?

Was the assumed estimate of the plans recommended about £8,000 more than the guaranteed tender submitted for Mr. Geoghegan's plan?

In fairness to all parties, we expect satisfactory replies to the above will be afforded.

## CATHEDRAL OF ST. BRIGID, KILDARE.

The correspondent of a morning contemporary writing from Kildare, supplies a column of "news" respecting the "Restoration of St. Bridgid's Cathedral," which has been undertaken by a committee. He tells us that "a period of a thousand years has elapsed since the magnificent ruins of Kildare were first originated"! We are credibly informed by a gentleman who visited the ruins during the past week, that there is nothing left of them that would be worth "restoring." However, the antiquarian correspondent informs the readers of the *Daily Express* that "Mr. Street, the eminent architect, has prepared plans and designs for a complete restoration [?], and these will be carried into effect by Mr. Waldron, of Sunny Hill, Kilcullen, who will have the supervision of the entire works. These two names are significant of the intentions of the cathedral committee." The expense is put down at £5,000. Of course we shall hear more on the subject.

## CORK SCHOOL OF ART AND SCIENCE.

At the recent examinations at South Kensington, a large number of the students of above school were as usual successful. Amongst others were:—

Science Division—Richard T. Holland, pass in practical, plane, and solid geometry.

Building Construction—Maurice O'Meara, Queen's prize; James J. Gaul, Queen's prize; Eugene Crean, pass; John Meade, pass; David Owens, pass; Thomas Callinan, pass; James Leahy, pass.

Machine Construction and Drawing—Charles E. Ellwood, Queen's prize.

## HOME AND FOREIGN NOTES.

**EXPLOSION OF WHISKY.**—A fireman named Lechford has been killed by an explosion of whiskey while in transit from Belfast to Clones.

Sir John Arnott is stated to have invested the sum of £20,000, in five trustees, for Protestant and Roman Catholic charities in the city of Cork. The act is worthy of imitation.

**DEATH FROM FOUL GAS.**—A workman engaged in sinking a shaft for the foundation of a water reservoir wall in the vicinity of Omagh, has been suffocated by foul air at a depth of 32½ ft.

**FALL OF AN ENGINE.**—Two men who had been engaged in raising an engine which had run off the railway line at Limerick have been severely injured by the engine, after having been raised to a certain height, slipping from the jack and falling upon them.

**ROBBERY FROM A BUILDING.**—Two labouring men were on Saturday sent for trial at City Sessions on a charge of having stolen a quantity of copper sheeting and nails, the property of Mr. P. Brodigan, contractor for works at the Corn Exchange, Burgh-quay.

**THE LIVERPOOL LANDING STAGE.**—The action brought by the Mersey Docks Board against the Liverpool Gas Company to recover damages for the burning of the Liverpool landing stage terminated in a verdict for the plaintiffs. The damages were laid at £200,000, but it has been arranged to leave the exact amount to arbitration.

**LAND RECLAIMED BY PRIVATE ENTERPRISE.**—The *Chester Courant* states that the River Dee Company have successfully enclosed the land opposite to Connah's-quay, which they commenced enclosing about four years ago. The extent of the enclosure is about 2,500 acres, 2,000 of which will be in the county of Flint, and the remainder in the county of Chester. The drainage of the land thus reclaimed and the construction of roads will shortly be proceeded with, and we believe it is the intention of the River Dee Company to convert a portion of the estate into three large farms, whilst the remainder is set aside for the building of various manufacturing works, sites for which have already been applied for.

In commenting upon the complaint made by the authorities of Mercer's Hospital of the existence of a dairy yard adjoining, and of offensive smells from manure heaps, as also upon Mr. Boyle's report upon same, the *Medical Press* says:—"While in London the minimum cubic space allowed by law is 600 ft., in Dublin he states the average to be 268 ft. Mr. Boyle says this is not the worst case, for there are sheds next two other hospitals, one of which is a fever hospital, in one of which 470 cattle are housed, with only 230 cubic feet of space each. The owner of the dairy yard adjoining Mercer's Hospital is to be prosecuted. We venture to enquire what has become of the Medical Officer of Health for the city of Dublin, or of the consulting sanitary officer? or how does it happen that the inspection of public nuisances becomes the function of the secretary of the committee?"

**PHILADELPHIA AND THE EXHIBITION.**—As Philadelphia is to be the seat of the great Centennial Exhibition in 1876, and large bodies of foreigners will doubtless visit it, Consul Kortright in his commercial report on that port just issued, details for their information the following statistics, which give at a glance the general aspect of the city. According to these, Philadelphia has a population of nearly 800,000, and it lives in an area of 129½ square miles. The city has 1,000 miles of streets and roads open for use, and over 500 of these are paved. It is lighted by nearly 10,000 gas lamps. The earth beneath conceals and is penetrated by 134 miles of sewers, over 600 miles of gas mains, and 546 miles of water-pipes. It has over 212 miles of city railways, and nearly 1,794 city railroad cars passing over these railroads daily; 3,025 steam boilers; over 400 public schools, with suitable buildings, and over 1,600 school teachers, and over 80,000 pupils. It has over 34,000 bath-rooms, most of which are supplied with hot water, and for the use of the water at low rates the citizens pay more than half a million of dollars annually; it has over 400 places of public worship, and accommodation in them for 300,000 persons; it has nearly 9,000 manufactories, with a capital of 185,000,000 dol., employing 145,000 hands, the annual product of whose labour is over 384,000,000 dol. It exported in 1873 in value over 24,000,000 dol., and imported in value over 26,000,000 dol.; the amount for duties in gold was nearly 8,500,000 dol.; the real estate as assessed for taxation was over 158,000,000 dol., and there was collected nearly 9,000,000 dol. for taxes. The funded debt in 1873 was 51,697,147 dol., and the annual outlay in 1873, inclusive of interest on debt, was 7,726,123 dol. It has parks and public squares, and Fairmount-park, which is one of them, contains 2,991 acres, and is one of the largest parks in the world.—*Society of Arts Journal*.

**THE CHANNEL TUNNEL.**—At the half yearly meeting of the South-Eastern Railway, a discussion took place on the projected Channel Tunnel. The meeting was held at Cannon-street Hotel, under the presidency of Sir E. W. Watkins, M.P., who called attention to the following resolution which had been adopted by the board of directors:—"That the board is prepared to recommend to the shareholders of the South-Eastern Railway Company to contribute the sum of £20,000 for the purpose of making a shaft and other preliminary experiments in reference to the proposed Channel Tunnel. That this resolution shall be understood not in any way to bind the board to the recommendation of any further expenditure, or the subscription of any further capital on account of these experiments, or the construction of the tunnel. That the sum of £20,000 be subscribed, subject to the conditions named in the minute of the joint committee to the subscription of an equal amount by the London, Chatham, and Dover Railway Company, and with the understanding that the site of the proposed shaft and tunnel shall be approved by this board." In the discussion upon the subject, Sir David Salomons, Bart., expressed the opinion that, as the whole of England would benefit from the construction of the tunnel, it was rather hard that the shareholders of the South-Eastern should be asked to contribute towards the work. The chairman proposed the following resolution—"That the directors be authorised, if they should think fit, in accordance with the provisions of the South-Eastern Railway Act, 1874, to apply any moneys under their control, not exceeding £20,000, towards the cost of any soundings, and of any borings, shafts, driftways, or other works in connection with the construction of the tunnel under the English Channel." Having weighed the matter carefully they believed that there was no occasion to spend anything like £20,000 in experiments, but that sum would also secure to the company the whole of the traffic coming through the tunnel on this side of the channel the French would subscribe one-half.

Mr. Pancher moved an amendment in opposition to the resolution. He said that the whole affair of the tunnel would be a financial disaster, and if the shareholders sanctioned the expenditure of £20,000 their money would be lost. The amendment was negatived by a large majority, and the resolution from the chair was carried.

## PAY, AND NO WORK.

**DROGHEDA.**—At a meeting of the union sanitary authority of this town, an edifying discussion took place as to the nuisances abounding. The local press gives a report of the long string of questions and answers on the part of the chairman, members, and officers of the board. The following is a short sample which will amuse our readers, if it does not instruct them.

Mr. Daly called attention to a nuisance existing at Bettystown Cross, near the entrance gate to Mrs. Sheppard's. The attention of the relieving officer should be directed to it.

Mr. Farrell (collector).—That place is not in St. Mary's district; it is in Julianstown.

Mr. Maginn (R.O.).—I reported every one of them long ago. I sent notices to the doctor, and reported that it was in a very unsanitary state.

Mr. Mangan.—What are the doctors doing at all for the money they receive under this act?

Chairman.—When did you report it?

Mr. Maginn.—In last spring.

Mr. Daly.—We are in the middle of summer, and the nuisance is more flagrant than ever.

Mr. Mangan.—Who did you report it to?

Mr. Maginn.—To Dr. Adrian.

Chairman.—Did you get your last quarter's salary under the Sanitary Act?

Mr. Maginn.—I did.

Chairman.—And do you expect your salary again for another quarter, and doing nothing to earn it?

Mr. Mangan.—Is it possible we are to be compelled to pay 1d. in the pound for salaries of officers if no attention is paid to the carrying out of the Act?

Mr. Maginn.—I made fifty reports, and not one has been done yet.

And so on, to a great length, Mr. Mangan declaring, as a conclusion, that "It isn't alone in the country, but in the town, the Act is of no use but for heaping cost on the burghesses."

It was ordered that proceedings should be taken in the several cases reported by Dr. Drew.

[The above was in type for our previous number.—Ed. I. B.]

## TO CORRESPONDENTS.

**THE GOVERNMENT AUDITOR.**—We believe with a correspondent that the Government Auditor has been altogether too indulgent and lenient in dealing with the accounts of the Corporation. There are incidentals, "sandries," and "petty cash" items in the several accounts, that should not have been sanctioned in their present form; and there are other "wonderful" payments to which we may call attention shortly. If we are to have a Government audit, it ought to be a painstaking and exhaustive one; but the last balance-sheet, as passed by the auditor, cannot be satisfactory to the citizens.

**A GOTH.**—The subject has been touched upon already in the papers now appearing, and possibly may again.

**TIMBER HOUSES.**—We are not aware of the existence of any old timber houses in Dublin at present. Up to the early part of the present century, two or three old cage-shaped structures existed in the Liberties on the south side of the city, and engravings of one or more of these will be found in the first volumes of the *Dublin Penny Journal*.

**C.E. (London).**—Thanks for the information. It may be of service shortly.

**A YOUNG ARCHITECT (Belfast).**—It would be unfair to give currency to the report without being supplied with further and better proof.

**ORMOND (Kilkenny).**—If talk will do the work, a good many members of the Council may be expected to carry all before them.

**SANTAR.**—A short bill by way of amendment would meet the wants indicated. A sufficient time has elapsed to show that the act in force is defective in many ways.

Received.—M.D.—F.S.A. (London).—A. J. (Stephen's-green).

—Finbar.—R. H. A.—A Carpenter.—A Member of the Mechanics' Institute.—W. B. (the Dublin School of Art affords the facility).—Patrick O'Flynn, Athlone.—H., &c.

## NOTICE.

*It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.*

*We shall be glad to receive from any of our readers notes of works in contemplation or in progress.*

*Correspondents should send their names and addresses, not necessarily for publication.*

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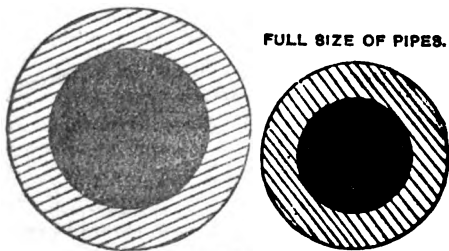
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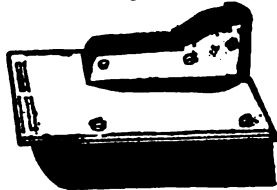
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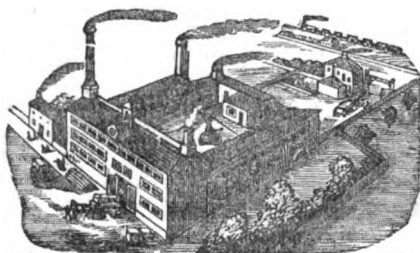
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# The Irish Builder.

VOL. XVII.—No. 378.

Illustrations of Dry Rot in Timber.\*  
SECOND NOTICE.



HERE is a decomposition and rottenness in the timber of buildings which is not produced by fungi. This may be observed in the joists and flooring of basement rooms and out-offices where there is no ventilation or drainage, or in cases where it is alternately wet and dry. According to Dr. Haller, seven parts in eight of a fungus in full vegetation are found by analysis to be completely aqueous. Mr. Britton is probably right in saying—"The strength of fungi is proportionate to the strength of the timber, the cohesive powers and nutritive juice of which they absorb; and, according to the food they receive, so they are varied and modified in different ways, and are not always alike. Different stages of corruption produce food of different qualities, and hence many of the different appearances of fungi. One takes the process of corruption up where another leaves it off, and carries it forward and further forward to positive putrefaction."

We will here give an interesting instance of a dry rot not given in Mr. Britton's book, though worthy of notice. Towards the close of the last century the Society for the Encouragement of Arts offered a premium for discovering the cause of dry rot in timber, and disclosing a certain method of prevention. Among other communications received was one from a Mr. Robert Batson, of Limehouse, London. As a contribution towards a history of the subject, the communication is worth reproduction in the words of the writer, as it illustrates the nature of the knowledge existing on the question of dry rot at the close of the eighteenth century.

Mr. Batson writes:—"The dry rot having taken place in one of my parlours in such a manner as to require the pulling down part of the wainscot every third year, and perceiving that it arose from a damp stagnated air and the moisture of the earth, I determined in the month of June, 1788, to build a narrow closet next the wall through which the damp came to the parlour, which had the desired effect; but though it put a total stop to the rot in the parlour, the evil soon appeared in the closet, fungi of a yellow colour arose to a great degree, in various parts it. In the autumn of 1786 the closet was locked up for about ten weeks; on opening it numerous fungi were observed about the lower parts of it, and a white mould was spread by a plant resembling a vine or sea weed, and the whole of the inside, china, &c., was covered with a fine powder of the colour of brick dust. It being then cleared out, I soon perceived what indeed I did not expect, that the evil had impregnated the wood so far as to run through every shelf therein, and the brackets that supported them; it had also seized upon and destroyed a move-

able board for breaking sugar on. I therefore, in the beginning of the year 1787, determined to strip the whole closet of lining and floor, and not leave a particle of the wood behind, and also to dig and take away about two feet of the earth in depth, and leave the walls to dry, so as to destroy the roots or seeds of the evil. When by time and the admission of air and good brushing it had become sufficiently dry and cleansed, I filled it of sufficient height for my joists with anchor-smiths' ashes, knowing that no vegetable would grow in them. My joists being sawed off to their proper lengths and fully prepared, they and the plates were all charred and laid upon the ashes, particular directions being given that not any scantling or board might be cut or planed in the place, lest any dust or shavings might drop among the ashes. My flooring boards being very dry, I caused them to be laid close, to prevent the dirt getting down, which I thought in course of time might bring on vegetation. The framing for lining the closet was then fixed up, having all the lower panels let in, to be fastened with buttons only, that in case any vegetation should arise the panels might with ease be taken out to examine them. This having now been done upwards of six years, and no vegetation or damp appearing, the whole panels and floor remaining the same as when first put in, I shall have satisfaction in taking part of the floor up, if the society think proper to appoint a committee to examine the place. If what I have produced meets the approbation of the society, I wish it made public under their sanction, that as full a trial as possible may be made of it; and if at a proper distance of time it proves of general utility, any honorary token of the society's approbation would be received with much satisfaction by me. I think it may be highly necessary in some situations to take out a greater depth of earth, and ashes can be had from a foundry—they are fully equal to those from anchor-smiths, but by no means depend upon house ashes."

This communication of Mr. Batson is dated December 7th, 1798, and as appears by the "Transactions" of the society, Mr. Batson's labours and experiments met their approbation. In consequence of the communication, a committee was appointed to examine and report the state of Mr. Batson's closet; and having met on the 15th of May, 1794, the wainscot being taken down and the flooring boards taken up, they were found entirely free from any appearance of the rot. From all the circumstances then observed, it was the opinion of the committee that, the method advised by Mr. Batson, when fully and completely put into execution, appeared to have answered every intention mentioned in his letter; and this opinion seemed more justly founded, as two pieces of wood (yellow fir) which had been driven into the wall as plugs, without being previously charred, were affected with the rot. The Society of Arts voted their thanks to Mr. Batson, and requested any person that might think proper to repeat his experiment, and favour the society with some account of the result. They observed, at the same time, that quicklime had been said to answer very well when used instead of anchor-smiths' ashes.

The trouble and care evidenced by Mr. Batson in the last century would be worthy of imitation now, notwithstanding our advanced knowledge on the generation of dry rot; and there is still room for the Society of

Arts offering a premium for the best essay on the nature, prevention, and surroundings of the subject.

There is a rot developed in living as well as dead timber, as there is in the living body. Speaking of the varied forms of fungi, Mr. Britton writes:—"The form which fungi assume are extremely diversified. In some instances we have a distinct stem supporting a cap, and looking like a parasol; in others the stem is quite absent, and the cap is attached either by its margin, and is said to be *dimidiate*, or by its back, or that which is more commonly its upper surface, when it is called *resupinate*. In some species the form is that of a cup, in others of a goblet, a saucer, an ear, a bird's nest, a horn, a bunch of coral, a button, a rosette, a lump of jelly, or a piece of velvet." Some of these forms of fungi we have seen growing mushroom-like on the trunk of a living but diseased tree near to or touching the ground, called by the country folk "fairy mushrooms." We have cut some of them off ash stumps as large and larger than dinner plates, shaped, in some instances, like a parasol, and again like a man's ear, with stems as thick as walking sticks, and as tough as leather. These forms of fungi, are, of course, not of the same order as the vegetable mould that grows on the timber of our dwellings in damp situations, and through other causes.

We have taken up flooring boards in houses near to the sea side, the walls of which houses were probably built with mortar composed of sea sand, and we found them on the under side thickly coated with fungi, and the inch boards in places rotted through two-thirds of their thickness from the under side where covered with the mould. We have also taken down window trimmings, jamb linings, backs and elbows, and skirtings, eaten nearly through in the same manner by dry rot, and partly held together by coatings of paint which formed a sort of hard enamel on the face, preserving them from being altogether eaten through. Badly made bricks, the clay of which has not been properly prepared, will, despite of their burning, give out a sweat. When this is coupled with bad mortar and bad wall plaster, dry rot is hastened in the timber that comes in close contact or proximity. Even dwarf walls, though a good provision for raising the joists in under floors from the dangers of damp or rot, are not a preventive if the timber is green and sappy, the bricks or mortar bad, and proper drainage and ventilation neglected. In the case we mentioned above of dry rot in the flooring, the joists were raised on dwarf walls, but they were greatly affected by rot, whole pieces being easily broken off by strength of the fingers.

Where a living tree separates into two stems or large branches at a certain height, the fork or junction is liable to generate decay from the action of alternating wet and dry. The hollow at the junction absorbs or retains moisture, and in some species of trees a sort of dry rot sets in. In the forks or junctions of some trees we have found hollows or holes two and three feet deep, and these holes in the centre of the tree were taken possession of by jackdaws and magpies to build their nests. We remember, as boys, once robbing a jackdaw's nest in this position; our hands were not long enough to reach the young in the nest, so, with our shoes and stockings off, we made a trial with

\* See ante, p. 233.

one of our feet. Our legs proved of barely sufficient length to reach the two young jacks in the nest, but, with great perseverance with our big toe, we displaced the position of the birds, who, being disturbed, perched themselves upon the uppermost part of our foot, so that by gradually withdrawing it we brought the young birds within reach of one of our hands and so secured our prize. We could afford many illustrations of the progress of ordinary rot and dry rot in living and dead timber; and Mr. Britton's book supplies many instances worth knowing.

In speaking of imported timber, Mr. Britton writes:—"In considering the liability of any particular timber to take the dry rot, attention must be paid to the circumstances under which it is imported. Sometimes the timber is a long while coming here, whilst at other times it is imported in a very short period. The length of time consumed in the voyage has a great deal to do with its likelihood of taking the rot; it may have a very favourable passage or a very wet one, and the ship is frequently in some degree affected with the disease. It perhaps begins in the ship, and it may often be seen between the timber or deals when it will impregnate the wood to a great depth. Whether it is inherent in the timber or not, of this we may be certain, that where there is a fetid atmosphere it is sure to grow. Canadian yellow wood pine timber is more subject to rot than Baltic or Canadian red wood timber, although the latter will sometimes decay in four or five years. Turpentine is a preventive against dry rot, and Canadian timber is sometimes largely impregnated with it, especially the red wood timber; the yellow timber is very subject to dry rot. Very few cargoes of timber in the log arrive from Canada in which one part or other of every log you will not see a beginning of the vegetation of the rot."

We have not space to give further extracts, but we can safely recommend the book as a very useful and serviceable one, and one full of valuable information not alone upon dry rot, but upon the use and nature of timber generally in most situations. We had intended to give a few quotations respecting the ravages of wood-boring insects in land and submarine timber, but must desist at present.

By way of finis, we may add that Mr. Britton accompanies his text with pictorial illustrations of dry rot in floor joist timber beams rotten at the heart; Kyan's preserving tank; Bethell and Co.'s timber preserving apparatus; timber piles from Balacava harbour, showing how it was riddled by the action of the *teredo navalis*; destruction of timber pile by ditto; shell and cell of *teredo navalis*; piles, Southend pier, destroyed by the *teredo* and *limnoria*; carpenter bees at work. This last bee insect is a great destroyer of the woodwork of buildings in the north of Ceylon.

#### ANOTHER PEEP AT THE CORPORATION ACCOUNTS.

In the Waterworks Fund receipts we have a surcharge of £82 17s. 6d. credited to the year 1872; and confined to this fund apart from others we have payments in shape of salaries and expenses to engineers, £818 0s. 11d. for the former and £101 for the latter, making a total of £919 16s. 5d. paid away for services of engineers confined to one department of the Corporation, distinct, be it remembered, from the additional payments to be found in connection with reputed services in other departments, each of which shew considerable additional sums. The secretary of the Waterworks Committee, for duties alone in this department, received £181 5s. 1d., the Town Clerk, City Treasurer, and City Accountant getting £199 6s. 7d. as their share in this department, apart from payments to them mentioned elsewhere. The annual drive

of the committee to inspect the works—to look at and drink to the health of their reservoir and their own healths—costs £20 19s. 2d. We are not told where the testing of pipes and drainage pipes took place; we are only told it cost £62 15s. 10d. Next comes a precious morsel in the shape of payments for work—no, not work, but recreation and refreshment: hotel expenses (two days) of deputation, counsel, witnesses, and officers attending inquiry at Roundwood respecting the pollution of tributary streams, only the little sum of £14 4s. 6d.; but how came the "sundries" that follow, of the sum of £48 8s. 8d.? This is balancing with a vengeance, and it is simply scandalous that accounts should be passed in this manner without the ratepayers being informed of the distinct work this payment covers! These repeated "sundries," petty cash, and other "incidentals" and "surcharges" ought to be brought under the attention of the Local Government Board by a committee of the citizens, and it should be known once and for all how long audits in this shape are to be tolerated! We have law and parliamentary expenses in connection with the Waterworks Fund to the tune of £1,728 17s. 9d., and salaries to superintendent and medical attendant, £427 1s., apart from other payments. We thought the Fire Brigade was efficient and self-sufficient in itself, yet we have a payment to the Royal Irish Society for Saving Life from Fire a balance due for plant of the sum of £26 17s. 4d. The proportion of the Local Government Board balance audit fee (1872) marked to this Waterworks Fund is 14s. 5d. We must pass over other sinister payments in this account, and come to the next fund.

The Main Drainage expenditure—one of the most scandalous accounts for years back of the whole batch—exhibits some nice payments, in sooth. Here we have patent illustrations of money paid away for doing nothing for supposed engineering work and other surroundings, all of which is little less than a wanton waste of public money. In connection with this fund the City Engineer and one assistant—mark the word *one* assistant—draw £888 1s. 6d., but a temporary assistant is put down at £12 10s., so we are to believe that one and one make only one, and the City Engineer and his two assistants make still only two people. After this, Archimedes is but an ass, Euclid a fool, and Cocker an unmitigated humbug! We were taught at school that, according to Cocker, one and one made two, and that twice two were four; but we are undeceived. The secretary and assistant secretary take £165 4s. 8d. in connection with this department alone; and again we have the City Engineer and his assistant, for petty expenses getting £26 1s. 10d.; the preparation of drawings for the pumping station machinery, &c., costs £150. How many times have these drawings been paid for? and how many tracings have been made and paid for previously? But this is not all, for the stationery, advertising, printing, &c., and lithographing plans and drawings, cost £756; again, there is a separate payment put down for printing and stationery in connection with the engineer's department amounting to £268 8s. 7d., and a ditto, ditto, for secretary's department of £5 16s. 4d. The scrivenery, which the assistant's assistant and the temporary assistant, we suppose, could not do, cost £8 12s. This Main Drainage account is a gigantic fraud on the city and the citizens!

In passing over the Vestry Cess Abolition Fund, we can only stop to note a payment of £13 12s. 8d. as a salary to clerk in treasurer's office, for services in connection with payment of annuitants!

We now come to the Improvement Fund. We see in these accounts an entry among the receipts of £250 "advanced as salary" to Mr. William Cotton, in 1873, and a receipt of £212 19s. 6d. for gas-meter fees. Coming to the payments in this fund there are some items of expenditure worthy of particular attention. [For macadamising there is £15,912 8s. Knowing the state of the streets

of the city, we are at a loss to know in what direction the work entailing this cost was expended in 1873-4. The salaries paid away are the most surprising items, several of the same officers getting paid over and over again, and drawing wages from the different funds. The secretary or book-keeper draws from this fund £588 9s. 9d.; the law agent £281 9s. 7d.; clerks in secretary's office £841 8s.; treasurer's second assistant £70. In the law and parliamentary costs of this department, for opposition to Alliance Gas Company's bill, 1874, £200; balance of taxed costs, session of 1872, £179 5s. 8d.; and for other law expenses £12 11s. 6d. Salaries to the Lord Mayor's deputies, inspectors, and other expenses *re* Smithfield Market, £711 5s. 9d.—nice pickings all these! The lighting of the public lamps, viz., the Gas Company £8,200, wages of lamplighters £1,179 odd, and for blessed "sundries" note £29 16s. 8d., making, in connection with our abominable half-dark lighting system, a total of £4,408 16s. 9d.

For widening and improving streets, the Midland Railway gets balance of contribution towards improvement of Newcomen Bridge £629; but it should be known that the botched works at Newcomen Bridge, including culvert, have cost over £3,500, and the dwarf walls along the side of the pathway there are a piece of design and workmanship enough to make angels weep for the state of municipal engineering in this city. For the piece of patchwork at 52, 53, and 54 Grafton-street, to widen foot-path £90. Contribution towards expense of planting trees in Sackville-street, and labour in connection therewith, a sum of £127 19s. 10d. is put down. We may soon expect to see a gardener's salary of £100 a-year for watering and pruning the trees. In this Improvement Fund the balance of audit fee *re* Local Government Board (1872) is returned at 9s. 10d. There is a "sundries" of £20 14s. 4d. in the Domestic Scavenging account, and there is a disallowance or surcharge by the auditor of £8 8s. There are several other sums full of suspicion.

In the Dublin Cattle Market account there is a payment to veterinary surgeon—fees for attendance in market to inspect cattle £107 2s.; law expenses £7 6s. 9d.; and "sundries" £2 9s. 4d.

In the Grand Jury Fund there is a payment for printing for Town Clerk's department of £899 5s. 6d.;—why not make it the round £400? There is a touch of the tailors' and drapers' way of doing business in these entries. The shopkeeper or salesman would not be so dishonest as to charge £1 for the trousers in his window: he is so conscientious and exact he asks only 19s. 11d. Stationery in the Grand Jury Account costs £24 8s., and scrivenery £62 14s. 2d. Salaries—proportion of general account is put down at £506 18s. Town Clerk's fees £100; Mr. Martin, assistant to ditto, for services alone in connection with this department £37 7s. Mr. Grice, ditto, ditto, £20, and for the assistance of three other clerks, who are paid their regular salaries, £75 15s.

We now come to the last account, the District Sewers Fund, and we have only space to notice a few items. The salaries, again, are the most noteworthy payments. City Engineer (proportion of) £49 8s. 7d.; City Accountant, ditto, £20 19s. 10d.; assistant engineer, ditto, £80 12s. 10d.; sewer inspector, ditto, £78 16s. 8d. When it is remembered how well the officers of the Corporation are paid, and the amount of assistance the chief officials receive by a number of assistant and temporary assistant clerks, and when it is also borne in mind how little labour is performed for the extravagant outlay, there can be no other feeling than one of indignation at the way the improvement of the city is neglected and the citizens plundered.

The report of Mr. G. W. Finlay is, as far as it goes, useful, and we hope will prove beneficial; but it is not minute or exhaustive enough. He details and comments very properly upon the irregularities that charac-

terised the doings of certain present and past officers of the Corporation; the violations of certain acts of parliament; the omission of entries of fees in connection with the Town Clerk's office; the deficiencies in respect to a late City Marshal; the appropriation of fees by the Lord Mayor's deputies or inspectors of weights and measures; the reluctance of the Corporation to submit to an audit; the great increase of expenditure under the head of Reformatory Schools; the unpaid account of £500 due to the Corporation by the Gas Company on the head of costs entailed in buying off opposition to bill promoted by Gas Company; the payment to sheriff, &c. In respect to the cleansing of the Liffey, the auditor allows and will allow all necessary expenditure by the Corporation till such be declared illegal by a competent tribunal.

What a nice picture of municipal misrule and mismanagement is there not displayed even in what is detailed in Mr. Finlay's report! But even apart from it, an examination of the Corporation accounts is enough to convince any honest man that Dublin is municipally murdered, and that her civic body is the worst in the three kingdoms! We hope the citizens of Dublin will make an united effort at the forthcoming elections to return a number of new, honest, and efficient representatives, and put an end at once to a system of incapacity and jobbery that has been for long years scandalising us before the world!

#### A PAWNBROKER ON ENGINEERS!!!

THE engineers of Great Britain and Ireland must hide their diminished heads and feel humbled indeed in the face of the professional pawnbroking opinion of Mr. John Byrne. If it was an O'Byrne that gave utterance to the weighty sentences, the humiliation felt would, no doubt, be greater. An old verse says:—

"By 'Mac' and 'O'  
You'll surely know  
An Irishman always;  
But if they lack  
Both 'O' and 'Mac,'  
No Irishmen are they!"

If this be true then we are pained at the docked honours of Mr. John Byrne. At a meeting of the Corporation *re* the improvement of Carlisle Bridge, this gentleman is reported as saying:—"He hoped in future there would be no slavish deference to the special views of engineers. His opinion, after twenty years' experience, was, that every engineer born imagined there was no skill in the profession outside his own. For the sake of the public interests he hoped that representative bodies would put their foot in future on that sort of thing, and allow available and genuine talent to operate legitimately and fairly." Now this is not a bad piece of impertinence, coming, as it does, from a pragmatical pawnbroker, who knows just as much about engineering as a cow does of an eclipse, and who, while he pretends to be well up in the law relating to municipal matters, is continually, at every meeting, breaking through the bye-laws framed for the proper conduct of public meetings, by making half-a-dozen of speeches instead of one. "For the sake of the public interests" (to use Mr. Byrne's own words), and for the sake of public decency to boot, we hope his brother representatives will "put their foot in future on that sort of thing." Parrots in a cage, when people like to be amused, will afford a laugh; but a parrot in a town council holding forth on engineers is enough to make an elephant go into hysterics.

If Mr. Byrne wishes to instruct as well as amuse his fellow citizens, let him favour them with his views on the history and philosophy of his own profession—its moral influence, and its elevating tendencies, its abuses, and its needed reforms. We have no doubt if he does this, the humbler portion of his fellow citizens will be delighted as well as benefited. The engineering profession can very well afford to treat Mr. Byrne's remarks with the just contempt they deserve. Notwithstanding that they will do so, we feel

that it is our province to take note of his words, and to tell him that his "twenty years' experience," whatever it may have improved his professional position in a worldly point of view, his education, as far as good breeding and manners are concerned, remains at the original standard.

#### THE ROUND TOWER.

*Appropos* to our articles on "The Literature of Gothic Architecture in Ireland," the following poem will not be out of place. It was written upwards of thirty years since, and appeared originally in a Dublin periodical, and formed one of a series of "Scraps from Irish History." The writer, we believe, was the well-known author of "The Monks of Kilcrea," a poem universally known by the lovers of Irish ballad poetry and history:—

Thou stern old tower!  
Erect in solitary grandeur standing;  
And wonder from the gazer's heart commanding,  
With silent power.  
What visions dim of days gone by  
Flit o'er my mind, while musing nigh,  
Unbent by time or storm.  
In this lone spot—thy slender form!  
Sole relic of an age, whose date  
Nor clerks nor chroniclers relate,  
How vain in fancy's wildest flight  
To read thy masonry aright.  
For centuries unto this hour,  
Mysterious tower!  
Thy column sore hath posed the curious;  
And priest and sage,  
In learned page,  
Have wrangled 'bout thy founders furious;  
While thou, despite each critic's pen,  
Still art a marvel unto men,  
Strange, singular, and lone—  
Hibernia's riddle, writ in stone!

Finger of time!  
Symbols whose meaning no man knoweth  
More than whither the tempest goeth,  
That soars sublime.  
Oh! if from thy tall pinnacle  
Some spirit voice could clearly tell  
The wonders thou hast seen,  
How strange and startling were the theme!  
Say, wert thou a beacon red and bright?  
Or tower to watch the stars by night?  
Or belfry built on holy ground  
To summon all who heard thy sound?  
Or raised by Guebir hands from Sidon's clime,  
The fire god's shrine?  
(As firmly thought the sage Vallancy,  
Or landmark sure, for traveller lone,  
To guide him onwards to his home?)  
For such was Hangrove's learned fancy.  
In vain I ask, on plain or hill,  
In silence stern thou standest still,  
Stray letter of a language fled!  
Whose alphabet no more on earth is read!

Primeval spire!  
And worthy alone our veneration,  
All others nigh thee seem of late creation,  
And thou their sire.  
Lo! crushed by time cathedrals fall,  
The green grass grows o'er Tara's Hall,  
The deep sea hides Dunmore;  
But thou art still unaltered as of yore!  
On thy lone form, while thus I gaze,  
I dream no more of other days;  
And Norman chieft and Irish kern  
Pass from my mind with visage stern;  
But him, the youthful watcher at thy fire  
My thoughts require—  
Whose eager soul, long on thee dreaming,  
Fed with his life the lamp he lit  
At thy dim shrine, and gilded it  
With lustre bright, tho' briefly gleaming.  
What tho' he died unknown and young,  
No minstrel's requiem o'er him sung?  
Still with thy cherish'd fame  
His country links O'Brien's name!

[In a review of Dr. Petrie's work, when it appeared, the late Thomas Davis wrote in the *Nation* newspaper, and his article was afterwards published among his literary and historical essays, that "the Phallic theory never had any support but poor Henry O'Brien's enthusiastic ignorance, and the caricaturing pen of his illustrator"; but had Davis lived a few years longer he would have found that O'Brien's theory had met painstaking and enthusiastic adherents among his own countrymen. O'Brien's book shews, indeed, evidence of haste rather than of carelessness, for it was written in a few short months, and the over-exertion of the author in its production, there is too much cause in fearing, cost him both the loss of his reason and his life. Petrie, D'Alton, and other his-

\* Henry O'Brien, a native of Limerick, a young man of great promise and enthusiastic genius. His essay on the origin of the Irish pillar tower was rewarded with a prize by the Royal Irish Academy, and was published in London in 1834. Had he lived to mature the powers of his vigorous and original mind, there is no doubt he would have ranked among the first of his country's antiquarians; but, alas! he died young.—*Author's Note.*

torians and antiquaries who have made their names conspicuous in discussing either side of the vexed question since O'Brien's time, have passed away; and, whether Pagan or Christian, the origin of our Round Towers is still an unsettled question, though we are nearing each year a more satisfactory solution of the historical and architectural riddle.—Ed. I. B.]

#### LABOURERS' DWELLINGS, GALWAY.

WE give with this number an illustration of a Labourer's Dwelling, designed by Mr. E. Townsend, C.E. A number of these cottages have recently been erected in the counties of Galway and Mayo, under the Board of Works. These cottages have the advantage of three bed-rooms, which prevents the evil of the different sexes sleeping in one room, which only too often occurs in country places. To these cottages is attached a yard with ashpit, w.-c., and piggery at the further end, and other out-offices according to the means of the occupier. The walls are built of rubble masonry, and the floor of living room, porch, &c., is made of concrete in preference to tiles, it being often found difficult to repair the latter in remote country districts. The total cost of one of these cottages is £120.

#### NEW NATIONAL OPERA HOUSE ON THAMES EMBANKMENT.

THE first brick of the new Opera House, about to be erected upon the Thames Embankment by Mr. Mapleson, was laid on the 7th inst. by Mdlle. Titiens in the presence of a party of ladies and gentlemen. The laying of the first stone will be a subsequent operation, and one invested with more honours. The nature of the site, which is made-up land reclaimed from the bed of the Thames, rendered a very deep excavation necessary. Trenches in the first instance had to be sunk to the depth of 40 ft. on the inland side, and of a still greater depth where the site abuts on the Thames Embankment. From the bottom upwards there is a concrete foundation of 23 ft., and 21 ft. of brickwork and masonry will bring the basement up to the level where the first corner stone will be laid on a future occasion. In sinking for the foundation, many relics of a past age were turned up, including the skulls and bones of animals that once roamed the Thames valley, old swords and other war-like weapons and domestic ornaments. The site occupied by the new building is nearly a square, and comprises nearly two acres. The building faces towards the Embankment, and three of its four sides will have openings on roads. The exits from the stalls will be on either side as well as from the front, and exits and entrances of amphitheatre and gallery, though under cover, will be separate. The building in front presents a pavilion-like edifice somewhat in the Franco-Italian style. The auditorium will be surmounted by a cupola, rising to the height of 146 ft. in front of the roof that covers the stage. The plan of the house shews a vestibule 100 ft. in length, on the level of which are the entrances to the stalls. On either side of the pavilions are circular staircases leading to the grand tier, and the pit tier is approached by separate staircases. The area will contain 500 stalls. Every provision seems to have been made. Suites of rooms are provided for refreshment and promenade and other wants. Each private box will have an ante-room. The lines of the auditorium are said to be taken from those of La Scala at Milan, which are accounted the best for sight and hearing. The new Opera House is from the designs of Mr. Francis H. Fowler, architect, and the contractor is Mr. William Webster. It is stated that the building will be ready for opening at the beginning of next year's season; if so, the contractor will perform very expeditious work, whatever may be its lasting qualities.



### THE LITERATURE OF GOTHIC ARCHITECTURE IN IRELAND.\*

IN the section devoted to "Ancient Castellated and Domestic Structures," Mr. Wilkinson informs us that Ireland is thickly studded with castellated structures, presenting a great variety both in design and size, and that in many respects these buildings are subjects of very profitable study, evidencing as they do considerable skill, in construction and choice of good material. The circular is among the earliest form of these mortar walled structures, and in Mr. Wilkinson's opinion "They display most interesting gradations from the thick walls, narrow windows and gloomy chambers of the structures of the eleventh and twelfth centuries, to those castellated mansions of the sixteenth and seventeenth centuries, in which the large mullioned windows are types of the greater security and progressive enlightenment of the nation; they afford interesting illustrations of the intimate connexion between the character of the inhabitants of a country and that of their architecture in various ages, and exemplify the reflection of the character and habits of the people in their buildings."

Our author is also of opinion that the same principle which originated and influenced the erection of the Round Towers, still prevailed when castellated structures arose in Ireland—viewed in regard to being used as places of defence. Castellated structures appear to have become very common after the invasion of Henry II., and are credited as being the erections in general of the Anglo-Norman chiefs. In form many of them resemble those in England and Wales; the original type, according to Mr. Wilkinson, being the castellated structures of Italy after the decline of the Roman empire. The principal castles of Norman character are those of Maynooth, Limerick, Carlow, Nenagh, and Glanworth, &c. Some of these are very bold and massive circular structures, but various forms prevail. The Norman castle at Trim is of square form, and is a type of others which have existed or are still existing in the country. The cannon of Cromwell is credited with the destruction of a vast number of our castellated structures; and subsequent to his time our castellated edifices were built less as means of defence, and more for ornament and comfort. To the revival of the fine arts in Italy and elsewhere on the continent in the fifteenth and sixteenth centuries is attributed the great change that took place in the architecture of the age by the restoration of the Classic forms of ancient Rome, and their adaptation to the altered habits of the time. Speaking of this change, Mr. Wilkinson writes:—"At this period talent was there greatly developed in all branches of the fine arts; and architecture, aided by painting and sculpture, shone forth with resplendent effect. The Italian style of architecture extended itself into England and Ireland, and effected an alteration of character in the buildings of the day, uniting the forms of the old Classic architecture, its columns and cornices, with the then prevalent Gothic style, which in England had, during the reign of the Tudors, advanced to general perfection."

A new era in architecture, in Mr. Wilkinson's opinion, commenced at this period, which perfected what is called the Elizabethan style, and this is the period that brought forth the large altar and mural tombs displaying variety of colours and extensive use of marbles, examples of which might be seen in St. Patrick's Cathedral. Views are given in Mr. Wilkinson's work illustrative of Irish examples of castles in the Elizabethan style. The change from castles to castellated mansions, illustrates another period in architecture in this country; feudal habits gave way to more frequent intercourse, commerce and trade brought merchants and traders together, and opulent families settled down in the towns, or, in fact, constituted the towns by their location. The western portion of

\* See ante.

Ireland is pointed to by Mr. Wilkinson, as containing the most interesting examples of domestic street architecture, particularly the ancient towns of Kilmallock and Galway. The houses of Kilmallock were once occupied by powerful and wealthy families of the nobility and gentry. The town of Galway also shows interesting examples of domestic architecture, differing from the architecture of England at the same period. An explanation of this will be found, perhaps, in the fact, that formerly a large trade was carried on between Galway and other places in the west of Ireland with Spain.

There are features in the Irish domestic stone structures peculiar to this country, and one of these features is thus remarked upon by Mr. Wilkinson:—"Among the most conspicuous of those features are the battlements which terminate the walls of the buildings. The great variety of ornamental terminations which belong to the Continental and English structures in the pierced and ornamental work of the parapets, does not occur in Ireland, for, with rare exceptions, the parapet is terminated with a very peculiarly formed battlement, common alike to the Ecclesiastical, Castellated, and Domestic buildings." The tower of Jerpoint Abbey is pointed out as affording a fair illustration of this kind of ornament. The chimney shafts of the ancient edifices of this country were bold and picturesque in appearance, quite unlike the brick, cement, or pottery-ware nightcaps of the present day. Many of the old chimney shafts show carefully-dressed masonry. The chimney-pieces within present examples of simple but bold design, and a few good illustrations of them are given by Mr. Wilkinson.

We will now come to the subject of the rise and development of the pointed arch in Ireland, as treated in Mr. Wilkinson's work. What he says on this point is entitled to consideration:—"It is here intended to advance a claim in favour of the early origin and gradual development and use of the pointed architecture of Ireland prior to the period of its introduction into England from the Continent. This is, and has been, a subject of considerable interest both on the Continent and in England; numerous writers have advanced various theories in support of its particular local origin, and most nations have been anxious to claim the palm of originating it. The question appears now [1845] to have centred itself into the belief that the pointed arch, with regard to the Continent and England, is of Eastern origin, and was introduced into Western Europe by the early crusaders, and that no satisfactory evidence or examples can be adduced in favour of its gradual development, or of any known local origin. It is, however, capable of being shewn that the pointed arch in Ireland had its origin in that country, being gradually developed from peculiar constructive arrangement; and that it was in use prior to the period of its being made known in those buildings which were erected after the intercourse with England, and in which the pointed arch peculiar to English buildings prevailed." . . . . . "From the peculiar geographical position of Ireland, there are many features in its architecture differing from that of other countries; and though the opinion is not here advanced that the pointed arch has originated in Ireland, and been the model for other nations, it is considered that the pointed arch was in use in Ireland, and its constructive peculiarities gradually developed, prior to the period when the pointed style was introduced, through England, to this country; and so peculiarly woven is the pointed style in some of the very early Irish buildings, that a failure to establish this proposition would shew that many structures are much less ancient than they are generally supposed to be."

Just so; and we need not fear that, in endeavouring to prove that the form of the pointed arch existed in our pre-Christian structures, that we are thereby doing any violence to the cause of Gothic architecture as associated with Christian buildings. Too

much nonsense altogether has been written respecting the pointed arch, and a great deal too much stress laid upon what is called the distinguishing feature of Gothic architecture. It is quite natural and rational to suppose that the thought would occur to the early stone builders or workmen that an angular-headed opening formed by two lean-to stones would be the simplest change from the lintelled aperture, and the simplest form of arched opening. There was nothing more occult in the pointed than in the circular arch, for without a knowledge at all of geometrical lines, the skilful workman's mind would suggest such an ordinary and commonplace variation from usual forms. We see the nucleus of the pointed arch in our Round Towers and other anterior stone-roofed buildings. It even exists in the far older stone-covered, uncemented, beehive-shaped structures in this country. In some instances the pointed openings in our Round Towers are formed by the simple expedient of letting two stones meet each other in the roughest way, without paying any attention to whether they should form a level bed on either side at their foot, or make a joint at the top. The next, and improved, form is where care is taken that a level bed is formed by squaring the two stones at the base, and providing at head for a clear vertical joint. In the third instance we have in narrow openings one large stone hollowed out to assume the form of a pointed arch. Fourthly, we have two stones, each curved on the inside, though not probably from a describing centre, yet each forming a fair specimen of the early pointed arch. Instances might be multiplied, each exhibiting improvements, and each advancing nearer and nearer to the geometrically described Gothic or pointed arch. The one approaching the nearest to the modern construction, of which examples will be found in different parts of Ireland, is that given by Mr. Wilkinson, where the radii of the curve of the arch sprung from the floor line instead of at or near the level at which the springing of the arch commences. The difference between this arch and the one constructed in the correct way is, the true arch has its stones radiating from the point which determines the curve of the arch.

Speaking of the rise and adoption of the pointed arch in England, Mr. Wilkinson observes:—"In England, after fruitless investigations, no satisfactory examples can be displayed to shew that it was the result of progressive advancement from any preceding style, but that it at once exhibited itself in the ecclesiastical buildings of England in a perfected state, being the result of its introduction from the East, where it was previously developed, and from whence it was most likely brought by the early crusaders. This conclusion is strongly supported by the construction of upper portions of the cathedral buildings in the Pointed style, while the lower portions were erected in the Norman or circular-arch style, which was in progress up to the almost sudden change and use of the light and pointed style, which appears to have at once found favour, and been almost universally adopted. This same Pointed style, that was introduced into England, advanced into Ireland, and is displayed in the Dublin cathedral and other buildings, chiefly on the eastern coast, subsequent to the invasion of Ireland under Henry II., and under forms of outline peculiar to the English edifices."

But, in respect to Ireland, Mr. Wilkinson continues:—"In Ireland new and interesting ground presents itself, and the examples which will be here referred to will, it is presumed, prove that the pointed arch was in Ireland practically applied before the introduction of the pointed style through England, and that it resulted from a progressive improvement in constructive arrangement, and that the pointed arch generally used in this country up to a late period was very commonly in imitation of that early form which originated here."

With these remarks of Mr. Wilkinson we entirely concur, and the examples he affords

us in his book of different forms of the early pointed arch prove his case and ours, but from different points of view.

Again Mr. Wilkinson remarks:—"To the Round Towers of Ireland we may fairly look for some of the earliest examples in the constructive arrangement of the arch; in them the form of the arch, or rather covering, before remarked upon is the usual mode of supporting the conical covering of the top. The openings in the upper portion of the towers also frequently possess this peculiar angle-shaped termination, which may be described as angle-headed openings."

The illustrations of the early pointed arch in Ireland given by Mr. Wilkinson are peculiar and suggestive. That of the arched floor in the old portion of Donegal Castle represents indeed a very interesting constructive arrangement, which is thus described:—"Either from ignorance of construction of a circular arch or in the attempt to cover in the usual way, with overlaying flat-bedded stones, a larger apartment than such construction was suitable for, the practical inconvenience originates quite unintentionally a very pointed arch, the straight sides of the upper portion being in imitation of the inclined sides of the angle-headed openings with which they had been familiar, but which in such a position could not be applied. An arch thus constructed would on future occasions be imitated and speedily improved upon by the very persons who constructed it, and who would at once appreciate its advantages, understand its principles, and apply it as required."

In the old chapel or crypt at Killaloe the arrangement of the roof has originated the arch, in every respect, says Mr. Wilkinson, "a pointed one, and differing in constructive detail only, and as much as may be calculated to satisfy most persons that it originated in the country, for there are no features about any other part of the building which appertain in the least to the pointed style, which became afterwards so general; and this is only one of the several examples of the kind in which pointed arches were used, and the date of whose erection is probably prior to the existence of buildings in England containing the pointed style."

Other similar examples are pointed to, including King Cormac's Chapel at Cashel, St. Kevin's at Glendalough, Columbkille at Kells, and St. Douglough's, County Dublin.

In the abbey of Timoleague, alluded to by Mr. Wilkinson—a building of the thirteenth century,—the pointed arches are raised on low Norman piers; and respecting this building our author remarks:—"From the early simplicity of its construction, and for the sake of argument, it is fair to state that it is difficult to discover whether the pointed arches are the result of imitation of those of local origin, or of a style introduced through England, so close is the resemblance to both."

..... "Had Ireland, however, been altogether excluded from any intercourse with England or the nations of the Continent prior to the introduction through that channel of the Pointed style of Gothic architecture, it is most probable, from what has been advanced, that under different forms a Pointed style of architecture would have been developed entirely her own, so decidedly had the pointed arch originated and displayed itself in this country."

As it might be reasonably asked why the development of the pointed arch should be capable of displaying itself in Ireland, Mr. Wilkinson replies:—"The remote position of western Ireland is the chief cause that the architecture of England followed closely on that of the Continent; and that from the greater wealth devoted to the ecclesiastical structures, as displayed in the magnitude of the large ecclesiastical edifices erected at the period when the Norman or circular arch style prevailed, there was less occasion for constructive invention; the circular arch style being so generally prevalent and skillfully applied by practical workmen, whose resources appear to have been abundantly great, and whose ingenuity was chiefly

directed to the enrichment and varied application of the circular style." "Not so in Ireland, for there the pointed arch has evidently resulted from the ingenuity which the early builders exerted to overcome practical difficulties, the very superior practical advantages of the pointed arch having, undoubtedly, originated it, while its beauty and airy lightness gradually advanced it to that perfect and unique style of building so well known to us as Gothic Architecture."

A perusal of Mr. Wilkinson's work, and a careful examination of his illustrations, which we believe were faithful drawings and views of our ancient structures when first taken, must strengthen the opinions formed by the advocates of the Pagan theory of the origin of our Round Towers, as well as those on the Christian side. Both sides are afforded material for speculation and application. If we think with him on the Christian side respecting the architecture of our Round Towers and the ecclesiastical buildings he points out as immediately succeeding them, we would be constrained, of course, to admit that he has proven his case, and the evidence he brings forward is strong. All, however, or much, depends upon the point of view that is taken. We honestly dissent from Mr. Wilkinson's theory respecting the origin of our Round Towers, and the uses for which they were designed; but we subscribe to his opinions pretty fully respecting the indigenous development of the pointed arch in Ireland by our early stone builders, uninfluenced and unassisted by examples outside our own shores. Early forms of the pointed arch, examples of which are given in Mr. Wilkinson's work, are assuredly *adscriptus glebe*; but in holding this opinion we do not hold that the pointed arch in its earliest form is necessarily of Christian date, or confined alone to our early Christian churches, though afterwards the pointed arch in its perfected form, and accompanied by its varying styles of ornamentation, became the distinguishing feature of Gothic Architecture.

#### PUBLIC RECORDS IN IRELAND.

(Continued from page 237.)

MANY of the "Fiant's" of Henry VIII. will supply a useful indice or reference for ascertaining the older designation of names and places, and the varying changes their orthography has undergone in the course of two or three centuries. In the following entry we have the word Howth spelled Howeth, and in another place it occurs as Houth. In Herman Moll's and other old maps it also occurs in the latter form.

1544.—Grant to Henry Draycott, of the office of king's remembrancer of the exchequer. To hold for life, with such fees as Thomas Howeth, *alias* de St. Laurence, had. [It will be seen that in 1584, there was a grant to Thomas de St. Laurence, *alias* Howth, of the office of second justice of the chief place or bench, to hold during pleasure, with a fee of 40 marks; and that in 1535 there was a grant to Hugh Holgrave, of the office of summonister of the exchequer. To hold for life, with such fees as Robert Houth had. In these Fiant's we do not see any mention of the acquisition of confiscated estates by the Howth family, though the names of other Fingal gentry figure pretty often; but then the St. Laurence or Howth family were not new comers, and did not stand in need of broad acres at the time to constitute them a mushroom nobility.]

1544.—Grant to James Dyllon, late prior of Kilkeny, County Westmeath, of a pension of £10 "granted unto the said prior considering his blood and good hospitalitie he kepte, and that he here after intendethe to kepe."

1544.—Lease to Richard Rove, of Kilcoke, of two parts of the altarages of Kilcoke, belonging to the rectory of the same, parcel of the possessions of the late hospital of St. John of Jerusalem, in Ireland. To hold for 21 years, at a rent of 40s.

1544-5.—Lease to John Parker, of Dublin, gent., of the site of the priory of Holmpatrick, lands of Holmpatrick, Mylwardiston, Estan, Newgrang, Hacketeson, Loughbraghe, Lane Barnegeraghe, Balrostin, Skerres, Mallahonyn, Sadilliston, Pierston, Kynure, Dalabrunne, Swerds, Hamonston, Hayeston, and Balrothery, and custom, poundage, wreck of the sea, tithe of fish, &c., of the port of Skerries. To hold for 10 years, at a rent of £57 4s. 4d. [The port of Skerries must have been a far more important place in Henry VIII.'s time than at present, or at least a few years back.]

The following Fiant is very suggestive, for the name of Bathe occurs pretty often in Dublin chronicles as well as in these Fiant's. Members of the family held different law offices under the Crown, and were wealthy citizens of Dublin. If we mistake not, one of the old timber houses of Dublin, that disappeared early in the present century, had the name or initials of one of the Bathe family, with other carvings, cut on its chief beam. If we remember aright (for we speak from memory), an illustration of this timber structure will be found in one of the early volumes of the *Dublin Penny Journal*. Of the Bathe and Eustace family, whose names occur pretty often in these Fiant's, we will speak more particularly and in detail on a future occasion.

1544-5.—Lease to James Bathe, of Dromnaghe, gent., of Grangerde, Grange of Travete, Halton, Shanraghe, County Meath, Kynanyrion, *alias* Archideaconston, County Kildare, three messuages in Thomastrete, by the house of Nicholas Lamken, two messuages and a garden in the parish of St. James, occupied by Dermot, labourer, and a tenement and garden in said parish, in the suburbs of Dublin, rectories of Crickiston, county Meath, Fennaxes, Dromine, Barraghe, Kylrosnarryn, Ballykelly, Dromphe, Castelmore, with the tithes of a caracate of land of the late priory of Tullaghfelyn, in the counties Carlow and Kildare, parcel of the possessions of the abbey of Thomas-court, by Dublin. To hold for 21 years, at a rent of £18 14s.

1544-5.—Lease to Patrick White, Clontarf, knight, second baron of the exchequer, Walter Tyrell, and Rowland White, of Dublin, merchants, of the customs, cockett, poundage, and byllet of the port of Dublin. To hold for 21 years, at a rent of 220 marks and 10s.

1544-5.—Grant to Thady M'Bryen, of Grene Ogonaghe, of the manor and castle of Toghexgrene, with appurtenances lately received from certain robbers called the "Oolde Children," in Ogonaghe, County Limerick. To hold in tail male, by the service of a twentieth part of a knight's fee, and a rent of 6s. 8d. sterling. [The "Oolde Children" must have been wide-awake boys, but Limerick, in our days as well as in Henry VIII.'s time, was blessed with rather hardy children, to wit, the "Three-year-olds" and the "Four-year-olds" who were wont to fight like devils for conciliation. They were not robbers certainly, they only broke each other's heads. We hope these modern "Oolde Children" have grown older and wiser by this time.]

1544-5.—Lease to James Buttler, Earl of Ormond and Ossory, of the rectory of Kiltyham and land in Kepdromyn and Sleyboyne belonging thereto, parcel of the possessions of the late abbey of Ossney in England [Osney at Oxford]. To hold for 21 years, at a rent of £5 [a hiatus].

1545.—Grant to Edmund Power, bastard brother of the late Lord Power, of the site of the abbey of SS. Koan and Borgan, *alias* Brogan, or Mothell [list of several lands in Waterford and Tipperary follows], leased for 21 years to Catherine Butler, of Curraghmore, widow, and Peter, late Lord Power. To hold for his life without account during the said term of 21 years.

1545.—Grant to Thomas Clynton, yeoman of the chamber, of the place of the horsemen to serve in the wars. To hold for life, with

a fee of 9d. sterling a-day. [The same year John Traverse, groom of the chamber, obtains a grant of the manor, castle, and mill of Rathmore in Leinster, with several other lands in occupation of Christopher Eustace, possessions of James Fitzgerald, attainted (the Leinster family), and other lands in the County Dublin, part of the possessions of St. Mary's Abbey; also lands in Gylton, County Kildare, partly in occupation of Alice Eustace, possessions of the abbey of Balkynglass, with full manorial and admiralty rights. To hold in tail male by the service of the twentieth part of a knight's fee, and a rent of 10 marks English. This John Travers, or Traverse, groom, was well provided for, as will be seen on reference to these "Fiantis."]

1545.—Lease to Dermot McCormake oge, late preceptor of Morne, *alias* Manynyman, County Cork, of the preceptory of Morne, and lands [here follows a list of several in the County Cork]. To hold for 21 years, at a rent of £9. Mem.—Void because granted to Earl of Desmond.

1545-6.—Grant to Robert Sentleger, Esq., in consideration of the sum of £261 2s. 6d., of the manor of Kill, County Kildare; lands, Kyll, Artewell; Arterstoune, Nicholstoune, Arteslande, Ballibrogg, Barronragh, Ales-toune, County Kildare, possessions of the abbey of Thomas-court. To hold for ever by the service of a fortieth part of a knight's fee, and a rent of 18s. 9d. sterling. [These Sentlegers, the lord deputy and other members of the family, fared exceedingly well in Ireland, large possessions coming into their hands of confiscated ecclesiastical and other landed property.]

1545-6.—Lease to James Bathe, chief baron of the exchequer, of Blakerath, *alias* Canon-rathe, and the rectory of Castelwaringe, County Kildare, parcel of the possessions of the abbey of Thomas-court, by Dublin. To hold for 21 years, at a rent of 48s. 4d. for Blakerath, and £4 for the rectory.

1545-6.—Grant to Patrick Barnewell, of Gracedieu, sergeant-at-laws, for a fine of £20, of custody of the lands lately belonging to John Serle, son of Patrick Serle, of [Shallon], and of the wardship and marriage of Marion, sister and heiress of the said John. Also license to said Marion to enter into possession without further process, upon her attaining the age of sixteen years.

1545-6.—Lease to William Brabazon, sub-treasurer, and Elizabeth his wife, of the site of the abbey of Mellifont, County Louth, with its appurtenances. To hold for 17 years, at a rent of £816 16s. 8d. [The possessions were large, including weirs and fisheries on the Boyne.]

1545-6.—Grant to GERALD Aylmer, knight, chief justice, for a fine of £10, of the custody of the possessions of John Bathe, late of Colpe, and the wardship and marriage of Robert, his son and heir.

1545-6.—Lease to Robert Eustace, prebendary of Malahiddret, and Thomas Flemmyng, of Lutrelleston, chaplain, of the rectories and chapels of Kilcline, Balrodon, and Gal-lowie, County Meath, parcels of the rectory of Galtym. To hold for 21 years, at a rent of £10. [The premises had been leased by the prior of St. Peter's of Trym to Peter Lynche and others for 40 years, at a rent of £8 18s. 4d.]

The same year.—Livery to John Wssher [Ussher], of Dublin, merchant, son and heir of Christopher Wssher, late of the same, merchant.

1545-6.—Pardon to Thomas Cusake, of Gerardeston, County Meath, gent.; Patrick his son; Walter Michell of the same, cottier; John O'Murphy, of the same, labourer; Thomas Gogourtie, of Follleston, husbandman; William M'Loy, of the same, husbandman; Phillip Mancham, of Staffardeston, husbandman, and Hugh his son.

1545-6.—Lease to the Hon. John Alen, Esq., chancellor of the castle and manor of Lexlip *alias* Salmon-leap; lands, Lexlip, &c. [here follows a list], possession of James Fitzgerald, attainted [with other lands named], and land near the Rewe by Priores-ton meades, leased to said Alen for 21 years.

To hold for 10 years from 1558, at a rent of £82 6s. 8d.

Here is a pardon to a Dublin boy hailing from Kilmainham:—Pardon to Donogh O'Coyllone, *alias* Donoghballough, of Kilmaynan, horse boy.

1546.—Lease to James Bathe, chief baron of the exchequer, of the tithes of Rathouth, County Meath, belonging to the late abbey of Thomas-court by Dublin. To hold for 21 years, at a rent of £10 18s. 4d.

1546.—License to William Wyse, of Waterford, knight, to alienate to Thomas Plunket, of Killester, gent., and Thomas Fyane, of Dublin, merchant, a watermill, land, and a salmon weir in Chapell Isoulde, County Dublin. To be held for ever. [The above is the only mention, we believe, of Killester, County Dublin, in these Fiantis. The village of Chapel Isoulde occurs the second time in a Fiant of 1541, in which a lease is given to Richard Savage, of Chapel Isoulde, gent., of the site of the monastery of Augustin friars of Rosse, with appurtenances in Rosse and Palleopile, County Wexford. The Wyse family are long connected with Waterford. In 1588 there are among these Fiantis a grant to William Wise, Esq., of the king's body, of the site of the priory of St. John beside Waterford, and its possessions in the said city, and the lands of Krydan, Ballymabyn, and Lyssent, County Waterford, in the City and County of Cork. To hold in tail male by the service of one knight's fee. There is also a direction for the issue of a commission to suppress the priory. The name of an Andrew Wise occurs in a Fiant of 1544.]

There are a number of pardons in this year, of which the following are samples:—Pardon to Patrick O'Conyne, tiler, especially for the death of Dornot Rothtor. [It is evident we had a lot of tilers as well as thatchers in Henry VIII.'s time.]

—Pardon to Walter oge Bermyngham, of Meylerston, County Kildare, gent., especially for the robbery of four cows and fourteen pigs, of which he stands indicted. [Walter, perhaps, stole back his own. An Irish gentleman would not rob unless, indeed, he was an "idle man" or "half sir."]

—Pardon to Elenor Fitzgerald, sister of Gerald, late Earl of Kildare.

—Grant of English liberty to Con O'Mul-moy, of Dervack, clerk.

—Like grant to Thady O'Corryan, of Dervack, scholar, and his issue.

Grant of English liberty to Patrick O'Don-ylan, *alias* Donjan, chaplain. Fine 6s. 8d.

—Pardon to Donald boy Onare of Kilheale, County Kildare, husbandman and kern, lately of Ofayley, idelman, especially for the murder of John Vale.

—Pardon to Peter Boyse, of Calgaghe, County Meath, gent.

—Grant of English liberty to William M'Cormyke, chaplain.

—Pardon to James Nugent, of Multy-fornan, gent.; Nicholas Nugent, of Loghe-garmore, horseman; Patrick or Paden O'Morran, of Dardeston, horseman; Patrick Brode, yeoman; Oliver Ledwiche, Edmund O'Roer, Donald O'Trover, Patrick Holer, and Rory O'Farall, kerns, especially for the death of Walter, son of Theobald Nugent.

—Pardon to Walter FitzJamys Fitzhabart Fitzgerrot, of Artwell, gent., and Thomas Veldon, of Stacallen, late of Cloncurry, yeoman.

1546.—Presentation of Donogh M'Gynd, clerk, to the rectory of St. Canice, of Aghebo, diocese of Ossory, vacant because Donald M'Costygygn, the incumbent, is of the Irish nation.

Same year.—Grant to Baptist Ocrean, of Slegagh, of a fee of 12d. sterling a day for life. [This Fiant is dated from "Windsor" (Windsor); but whether Sligo is meant for Slegagh, we know not. The same name does not occur again throughout the Fiantis.]

We will finish our quotations in next issue. In the meantime we have docketed some names and places that occur throughout these Fiantis of Henry VIII. that may receive particular attention hereafter at our hands, if health, and life, and circumstances permit.

## THE DRUMCONDRA DRAINAGE SCHEME, AND THE TOLKA RIVER.

At a late meeting of the North Dublin Union Sanitary Board, a letter was read from the Local Government Board enclosing a copy of a memorial from the inhabitants of Fairview, Clontarf, against the proposed outfall for the Drumcondra sewage. The memorialists stated that they had heard with alarm the proposal to make the outfall from the intended sewer from Glasnevin, Drumcondra, and other districts into the River Tolka at Ballybough Bridge. They did not object to the drainage of the district of Drumcondra, but to the sewage being discharged into the River Tolka, either at Ballybough Bridge or at any other part of its course adjacent, as on the flow of the tide the refuse would be again brought up the river and deposited on its banks and bed, to the great danger of the health of the inhabitants, and consequent deterioration of property in the neighbourhood.

A letter from Mr. William Collins, who is an owner of property east of Ballybough Bridge, was read, informing the board that the proposed sewerage scheme would meet his determined opposition.

A deputation, consisting of Messrs. Donnelly, M'Entyre, Fenton, and Sullivan, attended on behalf of the inhabitants of Fairview, for the purpose of supporting the prayer of the memorial. Mr. Donnelly said if the scheme was carried out as proposed it would seriously affect the health of the whole neighbourhood of Fairview. They had no objection whatever to the proper draining of Crossguns, Clonliffe, and Drumcondra, but they objected strongly to the benefit of the discharge being given to the inhabitants of Fairview and Ballybough. Seven years ago the Tolka was a comparatively pure stream, but now it was quite the reverse. The interests involved in the matter were very great, but what was of more importance several persons in the neighbourhood had died from the effluvia. Instead of increasing the evil it was the duty of the Sanitary Board to abate it if possible. A year ago a movement had been got up for that object, but it fell through; but now that the people had seen the nature of the extensive scheme proposed they were determined to resist it to the utmost.

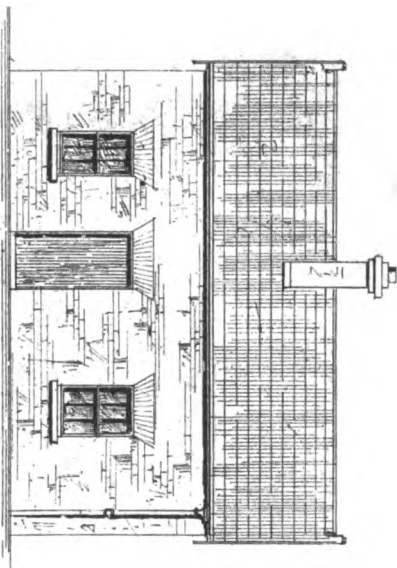
A second deputation, representing the inhabitants of Drumcondra, consisting of Messrs. R. W. H. Nash, Martin, MacMahon, and Kenny, attended to support the scheme. Mr. Nash said the sewage of Drumcondra had from time immemorial passed under the bridges at Drumcondra and Ballybough unobjected to, and the moment it was proposed to throw all the different sewers into one main sewer, there was a howl of rage at the people of Drumcondra, who were accused of attempting to injure the whole neighbourhood of Clontarf. The people of Drumcondra had no such intention in the proposed scheme. They were only going to collect the various sewers into one, and run it into the river. The Chairman—Where do you propose emptying the sewage? Mr. Nash—Into the river at Ballybough Bridge. It does seem unfair to send it down to Fairview, but that has always been the case, and all we want is to collect the different sewers together, and run them by the same channel to the sea. Mr. Tickell thought they should not forget the strong case that had been made out by the people of Fairview against the scheme.

It was resolved—"That the Local Government Board be requested to allow Captain Robinson to report on the amended plan relative to the sewerage of Drumcondra district, as a difference of opinion has arisen on the subject."

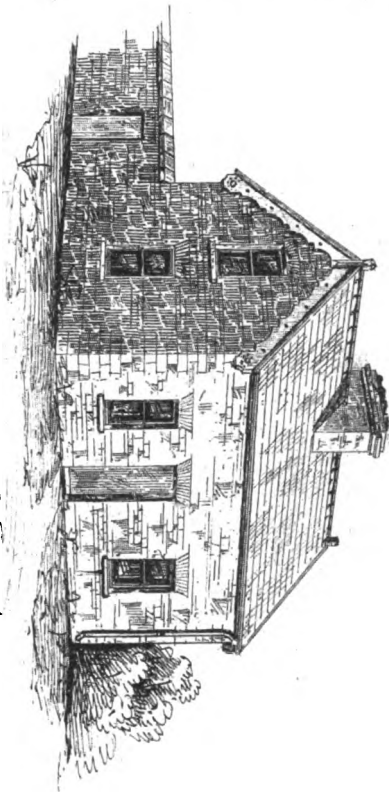
In reference to this proposed sewerage scheme a good deal might be said. The Drumcondra people have every right to get rid of their sewage in the best manner possible, but they have no right to injure an adjoining neighbourhood or township. The collecting of all the sewers together and running them into the River Tolka with the



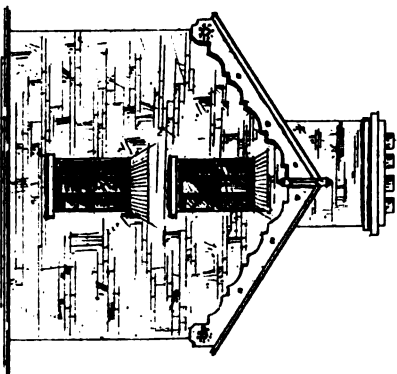
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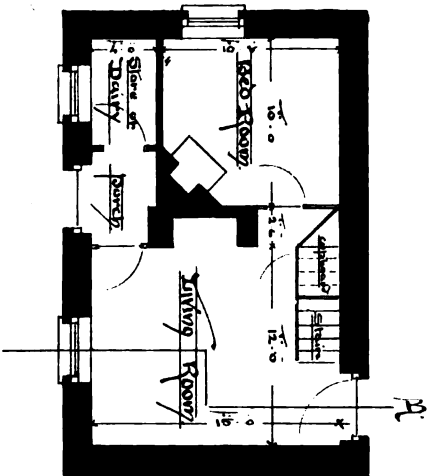
Front Elevation



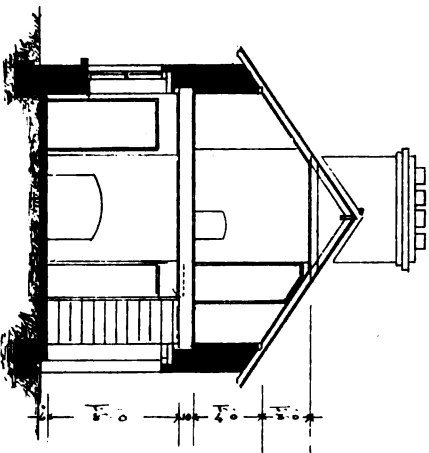
Perspective View



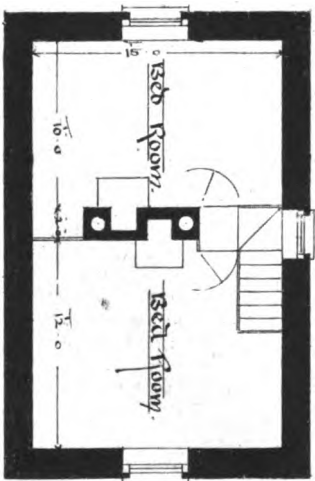
Side Elevation



Ground Floor Plan



Section of House



First Floor Plan

Edward Somers C.E.

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belief that the pollution will be carried out to sea is as wild a project as ever entered the head of any man. It is not only wild, but it is stupid and criminal. One of the deputations representing Drumcondra said that the sewage of that village "from time immemorial passed under the bridges at Drumcondra and Ballybough." We happen to know more of the history of Drumcondra than the speaker in this instance. Drumcondra had never any defined system of drainage, for we do not include the few drains made in the district during the last few years for carrying off the surface water a system of drainage. In the vicinity of Corey's-lane and the Mill-lane some house and back yard drainage found its outlet into the Tolka. It was so at Old Glasnevin and at Richmond. Cesspools were the custom, and it was through percolation of foul matter through the soil more than through regular drains that the water of the Tolka was polluted in years gone by. In fact, house and back yard drains were few and far between. This was the immemorial drainage of the Drumcondra district; but its foulness it could not compare with the mad system now proposed, which is nothing more than converting the River Tolka into a filthy elongated sewer from Glasnevin to Fairview Strand, and making the estuary at the latter place a feculent and chronic swamp. We remember seeing, and not many years since, the Tolka with water clear and sparkling, fit to drink, and much resorted to by anglers between the Richmond cascade and Old Glasnevin Bridge, at the head of Corey's-lane. But what it is now, as foul as it is, would be as nothing compared with what it would be if the proposed Drumcondra sewerage scheme was carried out! Birds do not usually befoul their own nests; and we are indeed shocked at the sentiments of the deputies representing the inhabitants of Drumcondra.

## CORRESPONDENCE.

## CARLISLE BRIDGE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—As it might be inferred from the notice of the recent meeting, in connection with this matter, which appeared in your last issue, that the designs of only three gentlemen were before the meeting of the Council on the 25th of August, I would ask you to favour me by inserting in your journal the following letter:—

Belfast, August 23rd, 1875.

SIR,—I have to acknowledge receipt of your letter of the 21st inst., informing me of the intended meeting of the council on Wednesday next, to consider plans for Carlisle Bridge. An engagement for Wednesday will prevent me being present at the meeting, which I am kindly invited to attend. I have therefore to request that you will lay before the committee the accompanying photograph of my design for a new Carlisle Bridge, together with the following observations:—This design was submitted in competition with others in 1862. At that time it met with very general approval, and its suitability for the site in preference to an iron bridge was, I may say, universally acknowledged; and since then—in 1870—the erection of a new bridge according to this design, or on the basis of it, was entertained and approved of by a committee of the Corporation, and recommended by them for adoption to the Port and Docks Board. In providing a level platform equal in width to Sackville-street, this design did not differ materially from others. Its distinctive character lay chiefly in its being a two arch bridge, of stone construction, but fulfilling all the conditions which the promoters of the competition would seem to have considered impracticable, except through the medium of an iron construction. The material proposed, and the arrangement of arches suggested, admit of a more architectural treatment than would be possible with an iron bridge, or with a single arch, and for this reason the general effect of such a bridge would be more in harmony with the important architectural features in the immediate neighbourhood. The carrying out of this design (exclusive of the angle towers, which are not an essential part, and which might be added afterwards) was shown by the estimate of a responsible contractor to be comparatively inexpensive. The present abutments strengthened and lengthened, being allowed to remain, with the central pier formed of the present two piers, would render the

work easy of construction. Should the council continue to regard my design with such favour as to lead them to again recommend it for adoption, I shall have great pleasure in supplying them with more detailed information.

W. H. LYNN, Architect.

The Town Clerk, Dublin.

The design I referred to was illustrated by you in 1862, and again in 1870, and at the time it was approved of by the Corporation, and recommended by them to the Port and Docks Board for adoption, the cost was estimated by a contractor, who would have been willing to undertake the work, at less than £50,000. I believe the engineer of the Port and Docks Board, who reported on the design, considered that a sufficient amount of masonry had not been provided for the foundations and abutments. As such a deficiency could be easily remedied without materially increasing the estimate, and as it would appear that the official engineers of the Port and Docks Board and of the Corporation respectively are in favour of a stone bridge, the only objection which this design would now seem open to is the fanciful one which was raised to its central pier. Mr. Page, C.E., in a letter published in 1870, took exception in a general way to this feature of my design, only, however, as far as I could see, because it was more or less original, and seemed to contravene a general rule, which, like all general rules are subject to exception. No substantial reason, either on practical or æsthetic grounds was advanced against the arrangement; on the contrary, if it was carefully and impartially considered in comparison with either a one or a three arch bridge, and in connection with the circumstances of this particular river and site, I believe that a verdict would be given in its favour on both grounds.

W. H. LYNN, R.H.A., Architect.

P.S.—As the platform of the bridge when widened would form a square, a central pier would afford direct support for any object placed in the centre of the platform. Such a site as this—for a memorial, for instance—would be a most commanding one, and would afford an opportunity for grouping with the central object whatever architectural features might be introduced at the ends of the piers. Such an arrangement suggested, to some extent, the idea of a central pier at the time, to receive the then contemplated memorial to the Prince Consort. Now it would be equally well adapted for that to O'Connell: and as the bridge would be equal in width to Sackville-street, the memorial would not diminish the width of the roadway in one position more than another. W. H. L.

Belfast, Sept. 9th, 1875.

Another competitor enters into particulars as to the plans which he has laid before "the powers that be." He says:—

SIR,—I beg you will allow me to state briefly that my design proposes not to "stuff and pad" the present bridge, and "put a new face upon it," but to take it down altogether to the level of low water, and on the foundations of the present piers (which have been reported sound) to erect new piers, and to form extensions on either side to the full width of Sackville-street by a continuation of these piers, or by iron cylinders filled with concrete, and on this substructure to lay an uniform construction of iron girders and plates, on which the roadway would be formed, so that the work proposed is, by this arrangement, intended to form an *entirely new bridge* above low water level. The extensions, as arranged on iron cylinders, were proposed to save the cost of cofferdams which would be required for building a continuation of the stone piers; but as I find the City Engineer has, in his recent report on this subject, recommended an extension of the present bridge, exactly in its present form, including of course a continuation of the stone piers, at a cost of £50,000, I presume that in his opinion there is no practical difficulty in the way of continuing the stone piers as shown by one of my plans submitted in the competition of 1862. Two plans were submitted by me to the Corporation, showing two different arrangements—one of a perfectly level bridge, the same which was exhibited in the competition of 1862; the other, made since to meet the supposed requirements of the Board of Trade as to headway above high water, difference in level be-

tween Westmoreland-street and Sackville-street and the proposed new drainage arrangements. These two plans are now before the engineer to the Port and Docks Board for his report; and I feel assured that if he considers them to be right in principle and design, and worthy of adoption, he will willingly support the Corporation in their wish to save the ratepayers some £50,000 or £60,000, which would go a long way in providing additional bridge accommodation, which many consider to be so much required, further eastward. It is, perhaps, a matter of no small moment to the inhabitants and traders of the important streets in the vicinity of the bridge, to know that both my plans permit of the existing bridge being used as at present, until the extensions shall have been opened for traffic.

THOMAS TURNER.

[Whatever amount of remodelling may take place—whether through the medium of iron or stone—the fact is patent, in view of the future, that another new bridge further down the river will have to be erected at no very distant date. Apart from present exigencies and financial considerations, and from an architectural point of view, we would prefer to see a new stone structure in the rebuilt or remodelled Carlisle Bridge, as it certainly would be more in harmony with its surroundings and the public buildings of our city. In the case of another new bridge further down the river, wherever erected, we would prefer to see it also constructed of stone. There need be no particular bias manifested in the matter by any person or public body whether Carlisle Bridge should be an engineer's or an architect's job, for bridge-building—whether of iron, or stone, or other material—is as much an architectural as an engineering performance. Both professions were once one and the same; and, despite modern railway construction and the extended use and application of iron on the part of the engineer, it is difficult to say at what point Architecture parts from Engineering, if it parts at all. We hold, however, that stone should be used where it is applicable; and for bridge-building in the centre of a city it is more in harmony with the architecture of our public buildings.—ED. I. B.]

## THE O'CONNELL MONUMENT.

We would not be at all surprised to see the works of the enlargement of Carlisle Bridge completed, and that of the new bridge further down the river commenced, before the O'Connell Monument is finished and in position. It appears that letters of administration to Mr. Foley's will have not been yet granted, and we fear that the public will yet see some litigation between artists and others in the matter of the artist's works and property. We trust, however, it will be otherwise. The testimonial committee are still as much in the dark as to the real causes of the delay as are the general public, and all the information the committee can vouchsafe at present, is, that their secretary is to keep himself in correspondence with Mr. Teniswood, and urge upon him the necessity of having something definite done! This is highly satisfactory on the part of the committee, who have wasted ten years over the matter, and celebrated a centenary commemoration over an unfinished and absent monument.

A new edition is announced of "Cassell's History of England," in monthly parts. This is the history of which Lord Brougham said, "The soundest principles are laid down in almost every instance. The interests of virtue, of liberty, and of peace—the best interests of mankind—are faithfully and ably maintained throughout." It will be illustrated with upwards of two thousand engravings, and a new portrait of her Majesty the Queen, produced in the best form of art, and printed on Imperial plate paper, 2 ft. 6 in., by 1 ft. 10 in., will be issued as a presentation plate with the first monthly part, which will be published on September 27th.



## ON BUILDING IN CONCRETE.\*

(Concluded from page 245.)

THE next point to be considered is the apparatus, or the mechanical means employed, to cause the concrete to take the required forms of walls and other parts of the building to be constructed.

There are two distinct methods employed in the use of concrete for buildings,—the “concrete brick” or “block system” and the *monolithic concrete* system.

By the first method the concrete is made to take the form of bricks or blocks, by being placed, when mixed, into small moulds, and afterwards, when sufficiently hard, these concrete bricks are set into their places in walls, &c., with mortar or cement joints, by skilled workmen, with similar scaffolding plant and expenses precisely as for brick work or stone work.

By the second or monolithic method the concrete, on being mixed, is placed and moulded at once into its permanent position.

No time is wasted in waiting till concrete bricks are strong enough to build. No expensive bricksetting is required, all the wall-building work being done by unskilled labourers, and mortar joints are avoided.

The avoidance of mortar joints is a great gain in strength.

One writer in favour of the concrete block system claims, in his list of advantages of concrete building (amongst many other advantages that can only be secured by monolithic concrete), the avoidance of dust caused by bad mortar joints. Surely the block system has no such advantage. The same writer pleaded in favour of concrete bricks that they give time for testing the cement. But where is the advantage in this? because, as I have already shown, there is ample time for testing before using the cement in building; and a prudent builder would not risk wasting money or time by using doubtful cement in making concrete bricks any more than he would do so in building monolithic walls.

If, however, bad cement were supplied by the maker, and the builder's preliminary tests failed to detect it, there would be yet an important safeguard in using the patent apparatus, now so generally employed for building monolithic walls.

The newly-built walls have not only to carry the apparatus, which is raised from time to time as the walls are built, but have also to carry the scaffolds with men and materials. None but good cement can resist the strain thus applied, and walls successfully resisting this strain when only a few days old may be relied upon to resist any strains that can be put upon them after, when their strength is so much increased.

There are very few districts where concrete block building can be done so cheaply as ordinary brickwork, and in many places where block building would cost more than brickwork or stonework, monolithic concrete would cost much less. In fact, monolithic concrete building has such decided advantages over concrete block building that no amount of special pleading in favour of blocks will deprive the monolithic system of its due ascendancy and present well-deserved preference.

It is next important to consider which is the best system of apparatus to be employed to secure all the advantages of monolithic concrete buildings. Wooden posts and boards for building monolithic walls have been used in all times, and in all countries. But only very small and unimportant buildings can be constructed with such apparatus, and the work produced is very inferior, crooked, and uneven, making interior plastering or exterior finishing more than ordinarily expensive. With nearly all the various modifications of wooden posts and boards, an independent scaffold has to be used, and the advantage of testing the walls as built is not secured.

Its cheapness in the first instance is,

\* By Mr. Charles Drake. Read at meeting of Civil and Mechanical Engineers' Society.

doubtless, the chief inducement to use wooden apparatus, but whatever is saved in first cost is very soon lost in extra labour spent in working clumsy, wooden contrivances in endeavouring to keep them in proper positions which (from the tendency of wood to twist and swell, and split with wet concrete on one side, and often a hot sun on the other side) it is impossible to do.

With the improvements in the manufacture of cement, commenced improvements in apparatus for building with it, the leading idea being, of course, to obtain a mould which could be moved up the walls stage by stage as these were built up.

A rather general delusion among would-be inventors of concrete building apparatus was that an apparatus could be made to slide up the face of the wall without being first detached from the guides or uprights, and many clever and complicated arrangements of gearing and spur wheels, and handles, for turning of screws working in the middle of the walls in the worm formed by them in the concrete that had set around them, were tried; but, of course, all failed completely.

The mould would not slide up except by carrying up the concrete wall with it, either in whole courses or broken, and the screws would not turn in the concrete till force enough was used to destroy the worm in which it was expected to turn. Therefore, the only workable apparatus were those which could be detached, and come directly away from the concrete when resetting of the mould was necessary. Then many attempts were made to counteract, or overcome the evils of twisting or swelling of wood, by various clever dispositions of it, and by framing it in various ways, and also by covering the wooden frames with zinc, tin, &c.

But none of these attempts succeeded completely, and were, besides, all hampered by more or less complicated fasteners, and by the use of the old-fashioned, time-wasting, easily worn-out bolt and nut.

The apparatus patented by myself in 1868 was the first in which the use of wood was entirely discarded. It is made entirely of iron. The fasteners are simple tapered pins, or rounded wedges, than which no fastener can work more easily. . . .

Before offering any remarks of my own upon the subject of architectural treatment, I beg to premise that I have at various times read the opinions of architects upon the subject of concrete building generally, as published in reports of papers read, and discussions following, at various scientific and architectural societies.

Quotation might be given, but I must now proceed with the remarks I wish to offer on this subject of architectural treatment; and I propose to divide these under two heads:—1st, Constructional; 2nd, Artistic or Decorative Treatment.

The great adhesive and cohesive qualities of Portland cement, and its capacity for resisting enormous tensile and transverse strains, adapt it for use in such ways as no other material is capable of.

Corbelling, oriels, and similar works, to the extent even of impossibility in any other material, may be done easily and cheaply in concrete. Arches may be built having no lateral thrust. Upper floors, and flat, or arched roofs, may be cast in place, requiring little or no iron in their construction for very considerable spans. Whole staircases are cast in place, with only light iron trusses cast in the midst, so that no iron comes in sight or under the influence of heat in case of fire.

Chimneys with projecting breasts may begin on upper floors, being hung out from the wall without the need of any supporting work under. Indents, hollows, and flues, may be formed in any part of the work by simply inserting castings or cores in the apparatus to exclude the concrete from spaces required. I would remark here that it has been erroneously stated that chimney flues require brick or tile lining to prevent disintegration of concrete through heat.

I can assert positively that no such thing can occur in any ordinary flue. If particles of concrete have come away in any case it has been through loose and bad work, and not from any disintegration through heat.

Openings may be formed anywhere in the walls without requiring lintels, arches, or other support for the walls over; a 10 in. thick wall has been built to carry itself in this way over a 14 ft. opening. Surely a material possessing such structural capacities should suggest features for architectural treatment suitable to its capacities. From being monolithic a broad and massive treatment seems to be suggested, and the capacity of cement for being moulded into ornamental detail should be kept in view. For the majority of dwelling-houses in towns and cities no decorative finish is ever attempted, whatever the material used in their construction. Nothing can be more wretched-looking than the ordinary brick front of the poorer class houses. How much brighter and more wholesome these would appear if built in concrete with plain cemented fronts. But hitherto the cemented front has been reserved for our West-end squares, and for such towns as Brighton, where ordinary brickwork requires cementing to ensure dry walls.

The face of concrete, as it is left by the mould, is so plain, crude, and evidently unfinished, that it must be taken to be a rule, that it must have a finishing coat of some kind. Unfortunately, the cementing I have already alluded to has in times past been applied to brick and stone walls, not in the matter of a legitimate and necessary protecting coat, but has been made the vehicle of deception, by giving to both brick and stone buildings an imitative appearance of a superior class of substantial stonework, and moreover the work has been done, in many instances, with bad materials, and also with bad, wasteful, and ignorant workmanship; so that, besides being a sham, it has become unsightly and unsound through cracking and peeling off, and in consequence an unreasonable prejudice exists against the application of a finishing coat of cement to the exterior surfaces of concrete buildings.

It appears not to be known or understood that the objections and causes of failure to which plastering or cementing of exteriors of brick or stone building is liable, do not exist in the case of cementing on concrete. A finishing coat of cement upon concrete is simply its natural and right treatment. Concrete gives such a good key for the cementing to grip and adhere to, that it practically forms part of the same mass, and concrete does not absorb and hold moisture to be acted upon by frost and heat, thus forcing off the plastering, as is the case with brickwork or stonework. The only liability to defects in cementing on concrete walls, is where two coats are used, and when idle and ignorant workmen, to save themselves trouble, use too large a proportion of cement for the thin finishing coat, then in consequence of the variation in the contraction of the two coats, the outer one is liable to show fine surface or (as they are often called) sun-cracks, and even in some cases to peel off. Of course this liability being known can be easily provided against.

It is considered by many architects and scientific men, whose knowledge and judgment on this point are far superior to my own, that nothing more is wanted in addition to what is done, for instance, in the case of the block of houses built by my firm, at the corner of Marlborough-place, Brighton, than the introduction of colour, either by building in terra-cotta or tiles, or by the use coloured cement similar to that called “Fresco,” which should be used to a limited extent only, and according to right artistic design.

A very good effect is produced in certain styles of building, by finishing mouldings around doors, windows, &c., in good sand-faced cementing, and giving the remaining spaces of panels a coat of clean fine shingle thrown upon a coat of cement while moist (my own house is finished in this way). This

has also been applied in a more limited way to the most artistically treated building yet erected in concrete: I refer to "Down Hall," the mansion of Sir H. Selwin-Ibbetson, Mr. F. Cockerell being the architect. The flat spaces are divided geometrically by bands of sand-faced cementing, the panels being shingled as before described. But the most important feature is in the panels of "sgraffito" work, to which I am anxious to call your attention.

Some brickwork architects, not satisfied with the advantages they have in colour, cause their brickwork to take the forms of plain, moulded, or blocked quoins, or of moulded strings and architraves. I leave to others more learned in architecture to say whether block quoins, &c., are legitimate treatment for brickwork, but surely very few will deny that running mouldings in brickwork are most hideous and unsatisfactory, or that running mouldings in cement are very much superior.

Stonework is much more liable to disfiguration by change of colour. No such discolouration occurs with good cement work, which never requires scraping, pointing, &c., as does stonework and brickwork. Nor does it require painting or colouring as is supposed by some, and as it is done in too many cases to hide and protect the usual wretched plastered brickwork. Some have proposed to face concrete walls with brickwork or stonework; but I trust such shams as these will never meet with much support.

It has also been suggested to cover the whole exterior surface of concrete walls with encaustic tiles, and doubtless very effective decorative results may be obtained in this way; but I presume the cost and bad effect of glazed surfaces will prevent the adoption of this proposal.

My hope is that architects will learn to appreciate the full value of cement both as a constructive and decorative material, for in this direction lies the only legitimate treatment of concrete buildings, and here will be found a wider and more fruitful field for both structural and æsthetic result than has yet been found or dreamt of.

I will conclude by repeating a statement made in a letter of mine published in the *Builder* of May last year:—

"I am fully persuaded that concrete building is capable of high and legitimate treatment whenever architects of ability take it in hand. The subject demands and deserves a treatment more carefully considered and more vigorous than any it has yet received."

#### THE BRITISH ASSOCIATION AT BRISTOL.

(Continued from page 238.)

THE various meetings of the sections commenced on Thursday. Mr. A. G. Vernon Harcourt presided over the Chemical Department, and in his opening address spoke of the twofold advancement of the science of chemistry—the first consisting in the discovery and co-ordination of new facts, the second in the diffusion of existing knowledge and the creation of an interest in the objects, methods, and results of scientific research. The advance of science was not to be measured only by the annual growth of a scientific labour, but by the living interest it excited and the number of its votaries. He regretted the small proportion of original work in chemistry which was done in Great Britain, and said that it was not because English workers were less inventive or industrious than their fellows across the Channel, but because their numbers were exceedingly small. No doubt there were differences in natural aptitudes and tastes, but the chief reason why it was so rare for men of leisure to turn to scientific pursuits was that so few boys and young women had had experience of the pleasure they bring. Much had been done during the past twenty years, both at the universities and at the public schools, to provide for the teaching of science. The University of Oxford had done so, and recognised it among studies requisite for a degree; and the other colleges had not been backward in forming scholarships and fellowships as soon as they had reason to believe that those elected for proficiency in science would be nearly equal in intellectual culture to those elected for proficiency in classics and mathematics.

Science, however, had failed to attract more than a small percentage of students. Examinations produced a habit of looking to success in the final examination as the end of study—a habit of mind peculiarly opposed to the true spirit of scientific work. Chemistry could only claim a place in general education if its study served not to make men chemists, but to help to make them intelligent and well-informed. He was of opinion that, wherever a school could afford appliances for the teaching of chemistry, all the boys should pass through the hands of the teacher of this subject, and those selected for the study who showed more intelligence or interest than the rest. Thus they would have coming men who had already learned the rudiments of science; and laboratories of research, as well as of elementary instruction, would find a place at the English universities—Oxford and Cambridge. The science of chemistry would advance more rapidly if it were possible to organise chemists into working parties, having each a definite region to explore, and he suggested that the representatives of scientific chemistry should publish a list of subjects for research.

Papers were afterwards read by Mr. H. T. Chamberlain, Mr. Thomas Davey, and Mr. A. S. Davis, on the manufacture and refining of sugar in Bristol, the tobacco trade of Bristol, and a simple method of determining the proportion of carbonic acid in air.

Mr. James Heywood presided over the Section of Economic Science, and delivered an address dealing chiefly with local statistics.

Sir Willoughby Jones, referring to the French sugar question, said he did not see how they could bring any pressure to bear upon the French Government to prevent their making us a present of a quantity of sugar if they desired to do so. If the Government chose to go on we must be content to receive it, and he did not see what right we had to remonstrate with the French Government. When the taxpayers of France were tired of making such presents, we should get into a more healthy state of competition.

Professor Jevons read a paper on "The Progress of the Coal question," in which he said that the coal famine of the years 1872 and 1873 ought to be regarded as the first twinge of a scarcity which must come, and it had taught them that coal had become the first necessary of life in this kingdom. Mr. Fellowes said that the increased price of coal, so far as English coal was concerned, might cause it to be imported into England.

Mr. P. Hallett having read a paper on "Income Fallacies and some other Consequences," Professor Jevons said that he almost regretted that so great a man as Mr. Gladstone should have thrown his weight in favour of a total abolition of the income-tax. He believed the income-tax least of all interfered with the progress of trade.

In the Mechanical Science Section, Mr. William Frouder, C.E., F.R.S., speaking on the causes of resistance to the motion of a ship through water, said that a vessel at the surface experienced no resistance in addition to that due to surface friction and the action of eddies. There was an idea that there existed a form of resistance, a something expressed by the term "direct head resistance," which was independent of the abovementioned causes. This notion was an entire delusion; no such force acted at all, or could act. No doubt, if two ships were of precisely similar design, the area of the midship section might be used as a measure of the resistance, because it was a measure of the size of the ship; but it was an utter mistake to suppose that any part of a ship's resistance is a direct effect of the inertia of the water which had to be displaced from the area of the ship's way indirectly. The inertia caused resistance to a ship at the surface because the pressure due to it made waves; but to a submerged body or to the submerged portion of a ship travelling beneath rigid ice, no resistance whatever would be caused by the inertia of the water which was pushed aside; and this meant that if they compared two such submerged bodies or two such submerged portions of ships travelling beneath ice—as long as they were both of sufficiently easy shape not to cause eddies—the one which would make the least resistance was the one which had the least skin surface, though it had twice or thrice the area of midship section of the other. Surface friction was much the largest item. The item of eddy resistance might practically be dismissed as regards wave resistance. In order to reduce it they should make the ship very long. On the other hand, to reduce the surface friction they should make her comparatively short, so as to diminish the surface of the wetted skin. But the data for determining wave resistance must be obtained by direct experiment upon different forms to ascertain its value for each form. An exhaustive series of such experiments could not be tried with full-sized ships, but he trusted that the

experiments he was now carrying out with models for the Admiralty were gradually accommodating the data on this branch of the subject.

Mr. William Denny (Dumbarton) read a paper on "The Trials of Screw Steamships." He advocated progressive trials. Professor Kennedy (London) strongly condemned the incomplete results of trials which were frequently supplied.

The Biological Section was held in three departments, Mr. P. L. Sclater, president, delivering his address before the separate meetings commenced. Lieutenant-General Strachey presided over the Geographical Section, at which the report of the committee entrusted with the grant in aid of the Palestine explorations was read, followed by papers by Captain Toynbee, Mr. James Croll, Dr. W. B. Carpenter, and Dr. J. Crum-Brown. Professor Balfour Stewart presided over the Mathematical and Physical Section, and papers were read by Professor Everett, Professor F. Guthrie, Professor Stokes, Professor Hopkinson, and Professor O. Reynolds. Professor Rolleston presided over the Anthropological Department, and papers were read by Mr. W. Pengelly, Dr. Beddoe, Dr. J. S. Phene, and others. The Geological Section was presided over by Dr. Thomas, and several papers were read.

A microscopical soirée was held in the Colston Hall at night, at which a large number of members and associates were present. The microscopes occupied the whole of the large hall.

On Friday the meetings of the sections were continued. A discussion arose in that of Economic Science on the reading of a paper by Mr. Henry Chamberlain, on "The Rise and Progress of the Sugar Trade in Bristol." Professor Leone Levi said that some surprise was manifested when the president in his address pointed out that the French, so shrewd, so clever in enterprise, and so poor in money, should be so good as to present to the people of England—or rather the people consuming French sugar anywhere—the enormous amount of twenty million francs per annum; that they should make a clear present to the English people; nay, that they should be willing to give some portion of this even to the Prussians. As to the proposals for imposing exceptional dues on French sugar, he thought that that was out of the question. It would be impossible to reimpose the duties. They would probably find French sugar sent into Holland, after which it would be brought into England. Lord Aberdare said that it was no doubt an advantage to this country to reap the benefits of cheaper productions in others, but the effect of these large bounties to French manufacturers was that they were rapidly destroying the refining industry of this country. There were large manufactories already destroyed. If this continued they would find that the present refiners of sugar would cease to exist, and the British consumers would find that, instead of a decrease, there would be an increase in the price of sugar.

Mrs. Mary Crawshay read a paper on "Domestic Service for Gentlewomen," and stated, from her experience, that the actual work done by ladies was greater than that done by her other servants. Lord Amberley thought there were certain material advantages to be gained by the plan which Mrs. Crawshay proposed. Lord Aberdare thought a great deal depended upon what they considered a gentlewoman. He confessed that, living in England and not in Utopia, he did not think that ladies ought to do menial work. Could they see in the present state of society any probability of such a change taking place as to hope that persons of refinement could find employment in menial capacities? He did not say that those ladies in Mrs. Crawshay's household suffered from any sense of degradation. But they must look at society as it was. They found certain relations existing between masters and servants. In many instances these might be softened, but could they hope to extirpate the feelings which were the growth of centuries, so that ladies might undertake these employments without any sense of degradation on their part, or on the part of their nearest and dearest relations? With a better education many and many a channel of employment now closed would open to women.

In the Mechanical Science Department, Sir R. Thomson and Mr. J. Hopkinson read a paper on "Methods for giving Distinctive Characters to Lighthouses." Sir W. Thomson, in advocating the eclipse light, said that rapid advances had been made in English lights, particularly in respect to their power, but more distinctions were required. He strongly condemned the use of coloured lights, except for marking a specific direction. Sir E. Belcher said that coloured lights were puzzling in the extreme. Lighthouses, for the expense they were to the nation, ought to do a great deal more duty. He did not see why a light which was to inform ships that they were off any place should not tell which way the tide was running, and should not signal Greenwich time at particular hours of night. It

was a matter upon which a committee might well be appointed. He had been travelling into harbours for sixty years, and he had been more puzzled by the lights on the Irish and English coasts than any other part of the world.

Mr. Beauchamp Tower read a paper on "A Machine for obtaining Motive Power from the Motion of a Ship among Waves." Mr. J. D. Cogan introduced the subject of "Toughened Glass," accompanying his remarks with illustrations. Mr. Hopkinson said that, from the fact that the glass had a very marked effect on polarised light, it was clear that it was in a state of strain. The outer portion of the glass was thrown into a state of compression, and the interior between the two surfaces into a state of strain. Dr. Woolley read a paper on "The Steering of Ships."

The Rev. S. J. Perry gave an address in the Mathematical and Physical Section on the "Transit of Venus." He said that although much prominence had not been given to the idea, he believed that a very important reason why so much expense was gone into the expedition was that the distance of the earth from the sun entered largely into the calculation of lunar tables. The observations were not of any striking nature; they were simply to watch a black spot pass across the sun. There was nothing exciting about it, except that when the observations had to be taken they had to be very careful about the precise time, and they had to observe the spot during the whole period of its precise passage. He denied the assertion that had been made that Sir George Airy had neglected Halley's method for Delisle's. The truth was he had rightly decided in favour of Delisle, but he had not neglected Halley. Captain Toyne, Sir Wm. Thomson, and Professor F. W. Barrett read papers; and Mr. P. Brahm gave several chemical experiments.

In the Chemical Section, Mr. P. S. Evans read a paper on the manufacture of sole leather in Bristol. Professor Williamson made some remarks on gallic and tannic acid. He conceived that the great object of tanners must be to diminish or entirely prevent the formation of gallic acid or glucose and its derivatives. Mr. Evans, in reply to Professor Thorpe, said that quick processes had sprung up, but had all failed. The process was as long now as it was thirty years ago, and the longer the time the better the leather. Dr. J. Watts made some observations on Muntz and Rampacker's apparatus for the estimation of tannic acid, and Dr. R. A. Tiden gave the result of some researches on the crystalline constituents of aloes. Other papers, by Mr. G. H. Beckett, Dr. Whight, Mr. F. Clowes, and Dr. S. L. Phipson, were also read.

Mr. W. Pengelly read the report in the Geological Section on the exploration of Kent's Cavern, Torquay; and Mr. Tiddeman read the report on the exploration of the Victoria Cave, Settle; and in the discussion which ensued Mr. Simmonds, Mr. Crosskey, Mr. Woodward, Professor Hull, and others expressed opinions as to the existence of man prior to the glacial period. The president (Dr. T. Wright) was of opinion that no direct evidence had been given that man existed previous to the glacial period. Other papers were read.

Professor Rolleston delivered his address to the Anthropological Section, in which he said that he did not deny that at times it was possible to give way to certain pressing temptations to think that we are living in a certainly deteriorated and a surely deteriorating age, and that it is hopeless and useless to set up or look up to aspirations or ideals. It was a disagreeable task to learn the whole truth, but it was unfair to draw dark conclusions as to the future based upon evidence drawn from an exclusive contemplation of the bright side of the past. Noble actions, when they came to count them up, were not, after all, so very common in the olden times; and side by side with them there existed, and indeed flourished, practices which the moral sense of all civilised nations had now definitely repudiated.

In the Geographical Section the following papers were read:—Colonel E. T. Gordon, "Exploration of the Pamir Steppe;" Captain the Hon. G. Napier, "The Turcoman Frontier of Persia;" Major Herbert Wood, "Changes in the Course of the Oxus;" General Sir Arthur Cotton, "The Depression of El Juf in the Western Sahara." The discussion was conducted by Sir Henry Rawlinson, Major Montgomery, Canon T. Ristram, Professor Hennessey, Dr. C. Brown, General Sir A. Cotton, and Dr. Nachtigal.

Professor Sponwood delivered a lecture at Colston Hall at night before a crowded audience, the subject being "The Colours of Polarised Light."

An English manuscript of historical interest has been discovered in the India Office. It is a memoir, by the late James Forbes, F.R.S., of the campaign of 1775, on behalf of Ragonath Row.

## ROADS AND PAVEMENTS—

THEIR CONSTRUCTION, WEAR AND TEAR, SANITARY ASPECTS, ETC.

(Continued from page 258.)

### MAL-ADMINISTRATIVE CONDITIONS PRODUCTIVE OF PUBLIC INSECURITY AND WASTE.

THE mass of direct evils, annoyances, and inconveniences fall, not upon the two or three hundred owners of shops on the line of Cheap-side, but upon the owners of the twelve thousand vehicles passing daily along it. They fall not upon the shopkeepers, but upon the passengers, who are estimated at three-quarters of a million, a ten times greater number passing through the city daily than the total number of its inhabitants.

In answer to inquiries as to the experience on this line, one of the shopkeepers in Cheap-side stated that he believed that asphalt was less slippery than the granite pavement. When the pavement was of granite, the falls of horses before that shop were about three a day, whereas since the asphalt there had only been about two in a day, that is to say, out of some fifty accidents daily along that line. But as to that three or that two regular falls daily, had he made no representation to the local authorities, or to those who had charge of the roads? No, he had not. The horses were not his, and so neither he nor other shopkeepers appeared to have been moved by the scenes of daily animal suffering to make any effort for its prevention. Very recently it appears that the slipping along that line on account of its "greasy" condition, occasioned an outcry for better cleansing, when this outcry was met in a manner which, if it were culpably clumsy, might be malice, for the street was so flooded with water as to make the entire roadway "a slop." The security to the horses was, however, at once complete; but there was an inconvenience to the shopkeepers from that "slop," and on a petition from them it was discontinued, that is, the safety of the passengers and the horses were sacrificed, and continued excessive cruelty to horses was maintained, and a most valuable material, discredited, on account really, as it would appear, of a mere ignorance of administration and inaptitude in cleansing.

The greater vehicular interest, and the far greater interest of foot-passengers whose lives and property are exposed, and who are subjected to continued terrors and annoyances, are evidently unrepresented, and left without effective protection.

The case will be found to be clear for a wider and more skilled representation on the part of the public, and for a competent and more general responsibility than is practicable by non-scientific bodies like the overseers or vestrymen. Some of the surveyors and other officers appear to be in advance of their work, but when amendments have been suggested to them they have declared that it was of no use to propose them, as it was beyond the capacity of their boards to entertain them. But the administrative areas are in conditions of mere barbarism and ignorance as to road formation, *cleaning*, and maintenance, and in such small and fragmentary patches as to preclude economical applications of science and art requisite for the purpose. Not in clean-streets Paris, as it has lately been designated, nor in any capital in Europe is there such an example of the *morcellement* and *frustration* of efficient means of amendment, as there is in London under the independent jurisdictions of *Vestries* and other local authorities. These conditions can only be maintained by reason of extreme apathy and ignorance, if not under sinister influences. Effective action for the saving of tractive force, in the manner described by Professor Butler Williams for example, with respect to the reduction of inclines, must for complete work be carried on over the entire area of the traffic. If complete work of that kind were attempted in parishes or in fragments, the result would be a series of misfitting sections. Independently of the inclines, it is desirable that uniformity should be maintained in the sur-

face pavement of the chief thoroughfares, at the least. The superintendent of the G division of the metropolitan police, where the differences of pavement are chiefly of granite and macadam, observes that "If the same sort of surface existed—uniformity in all thoroughfares—it would be beneficial to horses, inasmuch as horses are very nervous on going from one pavement to another, and accidents frequently happen in consequence." The humane feeling displayed in this view of the police superintendent admits of much stronger expression, and it is a matter of surprise that, with the kindly feeling there is in this country towards horses, there are such constant scenes of cruelty inflicted on them in the streets, not only by the use of the whip to get them up inclines and over difficulties that are removable, but by the violent and cruel use of the rein to stop the momentum of heavy carriages on smooth pavements, for which the break or "skid" might be used. Sir Joseph Whitworth shows, as to the work of street cleansing, that the removal of such solid matter as cannot be discharged by way of the sewers and places of convenient deposit, cannot, except at excessive disproportionate expense, be provided for numerous small independent sections, and that for efficiency in that respect, unity of administration over the entire metropolitan area is necessary. But the great thoroughfares are so cut up into petty and independent jurisdictions as to frustrate any systematic and economical action.

Some of these parochial or vestry jurisdictions divide the streets longitudinally, and one half of a street is paved at one time, and the other at another time, and sometimes by a different method; one half is swept at one time, and the other half at another time, to the detriment of both operations. Sir Joseph Whitworth found that he would have no less than four district authorities to deal with to effect the cleansing of the Strand by his machine. Having other things to attend to he was compelled, by the fragmentary condition of the administration in the metropolis, to abandon the attempt to deal with it. The Metropolitan Road Commission, of which Lord Lonsdale was chairman, comprised between one and two hundred miles of suburban road previously under small parochial jurisdictions, some of them not more than a mile each, and by that commission were retrieved from a barbarous condition to one of the best of the time under the direction of Sir James Macadam, as engineer. It has been stated that persons in carriages might in the dark tell by the jolting when they had left the roads of the commission and had passed on to any interior line under the care of the parish authorities.

To get rid of tolls from which the improved roads were maintained, the commission was abolished, and the roads were thrown again in parcels upon the parishes. The measure is one example of an increasing number displaying the expediency of having the elementary principles of political economy, involving administrative economy, taught in superior as well as in secondary schools, to stay the wastefulness of ignorance. In this instance, waste from defect in principle would have been seen to be inevitable. If the roads were to be kept up to their previous good and economic condition, it must be at heavy disproportionate expense to the separate parishes, for each for its mile of road must obtain the services of a distinguished engineer of skill equal to that of the special engineer of the commission, and also an equivalent staff and engine power. If the roads were left to relapse into their previous condition, they must lapse into a condition of waste of tractive force greatly more costly than the tolls saved. The proprietors of stage coaches stated to a Parliamentary Committee that upon gravel roads in the neighbourhood of London, so beautiful in appearance, and so pleasant to the traveller, horses of superior strength were rendered useless in the short space of three years. As against such waste, the parishes have the least, to them, appreciable interest. It has



not been within our means or province to cause an examination to be made of the present condition of the roads formerly under the metropolitan trust, for which examination there would have been needed a more extended application of the dynamometer, properly to test the present expenditure of tractive force on the roads, than was at the disposal of the committee; and also an investigation of the financial results of multiplied inferior establishments, chiefly under the direction of officers in private practice, with divided and inferior attendance. But we have had before us a careful examination, by a competent surveyor, of a length of a fair specimen of eight miles of tolerably well-kept suburban road, chiefly Macadam, at Mortlake, and of the cost of its improvement on principle, from which it appears that the expense of a smooth asphalted wheel track, which would save half the tractive force now commonly used, and of a concrete impermeable, Macadam horse track, saving dust and reducing noise, would be £50 per mile per annum less than the cost of the existing road to the parish.

The immense traffic of the urban districts is subject to long interruptions, with which the present fragmentary authorities are utterly incompetent to deal, with efficiency and economy. Falls of snow, for example, occur yearly, and block up the main thoroughfares for a greater or less extent of time. Then arise public outcries and articles in the newspapers, blaming the local authorities for the miseries and losses endured, as a consequence of their mal-administration. To get the main thoroughfares into a passable condition, it will be seen from the tabular view how many independent staffs, utterly unaccustomed to any common control, must be brought to act in concert. The consequence is prolonged obstruction to traffic and disorder terminated only by a thaw. A case is stated, where in consequence of the complaints of the state of a city thoroughfare a contractor for the cleansing of the streets was summoned before the Lord Mayor for not cleansing the streets properly. The answer of the contractor was, that his contract was for the removal of mud alone in its ordinary condition, unmixed with snow, and that if his lordship would have the goodness to direct the snow to be separated from the mud, and the mud to be placed in its ordinary condition, he, the contractor, would then be enabled to fulfil his contract and remove it. But he had not sufficient force, and could not be put to the extraordinary expense of removing vast quantities of snow. As usual, there was no help for it but to leave the public to endure their miseries until they were abated, and the difficulties were resolved by a thaw.

Unity of administration, under a specially qualified authority, would necessitate some provision and preparation for the occurrence of such conditions, and give the means of a rapid concentration of force, with proper appliances of snow ploughs, to be worked from end to end of lines, and to effect clearances of footpaths as well as of the carriage ways, and give relief, in a small time, and at greatly less expense than must be incurred by any possible or practically impossible concert of the present multiplied local authorities. Unity of administration would also reduce the prolonged great inconvenience and expense of irregular opening of the streets for gas and water pipes.

It may be mentioned here that as respects the horses' shoes, attention has long been called to its defects by Sir Francis Head and others, but Sir Joseph Whitworth now points out the achievement of a decided and important improvement, which will have a large effect in road conservancy, as well as the reduction of noise. The improvement consists in the fastening of a rim of hardened steel, of about half-an-inch square, to the horses' feet, and letting the frog grow to its natural size. One effect is to reduce by five-sixths the weight of the old shoe, or in other words to reduce by five-sixths the weight of the rim hammers constituted by the common

horses' shoes, pounding the road surface, and creating road dust and dirt, and distributing it about. The saving in this respect, as well as the reduction of noise by the reduction of the weight of rim, and also the saving of road wear, would warrant the imposition of a stimulus of a tax, or a toll upon heavy horses' shoes to hasten this removal.

We now call attention to the information collected, specially in respect to the new materials and to the chief new methods of pavement lately introduced and tried in London.

It is to be borne in mind that the essential qualities for our urban pavement are perfect impermeability, cleanness, smoothness, and tenacity for wheel traction;—granulated, roughness for horse traction, and noiselessness.

(To be continued.)

### CIVIC LYRICS.—No. XCIII.

#### "OUR AUNT."

Have you heard of the views of our Aunt, our Aunt,  
Upon engineers' works and their plant, their plant?  
She has made the town ring,  
For on "that sort of thing"

None a candle can hold to our Aunt, our Aunt.

Haste and read the grand speech of our Aunt, our Aunt,  
There is no one like her can descant, descant;  
If there's need to enlarge  
A town bridge or a barge,

Oh, just hand o'er the job to our Aunt, our Aunt.

With her twenty years' practice, our Aunt, our Aunt,  
She is well posted up in each want, each want.  
Parke Neville, they say,  
Will have to give way

To the projects and plans of our Aunt, our Aunt.

What will architects do if our Aunt, our Aunt  
Takes on to designing instant, instant?  
They will have to shut shop,  
And their drawing tools "pop,"

And to clear out at once for our Aunt, our Aunt.

'Twill be hard lines, we know; but our Aunt, our Aunt  
Knows engineers well and their cant, their cant,  
And her foot down she'll bring  
On all "that sort of thing:"

She's a strong-minded woman, our Aunt, our Aunt.

CIVIC.

### THE CORK LUNATIC ASYLUM, AND THE ARCHITECT'S COMMISSION.

We learn from the local *Examiner* that the matters in dispute between the board of governors and their architect, Mr. William Atkins, are still in an unsatisfactory state. We have already put our readers in possession of the main facts. At a meeting of the governors during the past week, the subject was again taken up in consequence of the receipt of a letter from Mr. Atkins, stating that no reply had been received to his letter of the 30th June. An offer of £300, or 2½ per cent. was made by the House Committee. Mr. Atkins maintains that he is legally entitled to 5 per cent., but that he is willing to accept £500. We fear that his only means of obtaining redress will be by the assistance of legal combatants on his side, and an appeal to the law courts. This course will, we trust, not be necessary.

### CORPORATE ITEMS.

#### CARLISLE BRIDGE.

At a meeting of a committee of "the whole house" on Friday last, memorials in relation to additional bridge accommodation to the eastward of Carlisle Bridge were considered. In addition to the memorial already received by the Council in favour of the construction of a new bridge across the Liffey to the eastward of Carlisle Bridge, a second memorial was presented advocating a bridge to connect the Westland-row Terminus with the Northern Railway Terminus in as nearly a direct line as possible. A bridge so situated, the memorialists urged, would greatly accommodate the heavy traffic from the quays and docks, besides affording much convenience to passengers. The committee resolved to recommend the Council to inform the memorialists that if they or the Port and Docks Board desired to promote a bill in Parlia-

ment to authorise the construction of such a bridge to the eastward of Carlisle Bridge, the Council would petition in favour of it.

#### CITY SEWERS.

At a subsequent special meeting of the council (twenty members being present), Mr. Dennehy gave notice that at the next meeting he would call attention to the defective condition in which the main sewers of Mountjoy-square had been permitted to remain for some years past, and the serious injury to the health of the inhabitants of that locality that had resulted therefrom; and would move that the subject of the present state of the main sewers of the city be referred to a committee of the whole house, with instructions to inquire into all matters relating to their formation, ventilation, and present condition, and to report to the council on these subjects with the least possible delay.

The question of the above memorials was subsequently entered upon, and after a lot of driftless talk, and there not being a quorum present, the special meeting of "the half house" collapsed, as it did on many previous occasions.

### HOME AND FOREIGN NOTES.

**LIMERICK LUNATIC ASYLUM.**—The tender of Mr. Leonard, Listowel, for additions to this building has been accepted by the Board of Governors. The amount is £11,800, and he has guaranteed to complete the work within eighteen months. Mr. Wilkinson is the architect.

**WARRENPOINT.**—At a meeting of the Newry Board of Guardians, three tenders for No. 3 contract in connection with the waterworks of this town, were opened, viz.:—Mr. H. Moore, Bunis-killen, £1,524 8s. 10d.; Messrs. Mahood and M'Murray, Newry, £1,524 10s. 10d.; Mr. W. J. Doherty, Dublin, £2,770 13s. 10d. It was resolved that the tender of Messrs. Mahood and M'Murray be accepted. The scale of charges prepared by Mr. Daniel for his present supply of water was approved of.

A handsome memorial pulpit has been erected in the parish church, Maynooth, from a design by Mr. F. A. Butler. It is principally composed of Caen stone, with shafts of red and grey marbles. It has been erected by the friends of the late Rev. G. D. Blacker, incumbent. The Duchess of Leinster has presented a reading-desk to correspond with the pulpit.

We understand that Mr. Turner, of this city, the builder of the great Palm-house at Kew, the houses at Glasnevin, and in many other gardens, is about to erect another wing to the great conservatory in the Botanic Gardens, Regent's Park, London, to correspond with the one put up by him in 1871.

A Northern *Sentinel* supplies, in a "Market Note," its readers with the following interesting and highly satisfactory information respecting the prices of "Slates" within its rounds. A prefatory note is attached stating that "The subjoined quotations are corrected every Monday, Wednesday, and Friday, by respectable Houses in this City:—Queen Tons, £0 00s. 0d. to £00 00s. 0d.; Princesses, £0 00s. 0d. to £0 00s. 0d.; Ladies, £0 00s. 0d.; Countesses, £00 00s. 0d.; Duchesses, £00 00s. 0d.; Marchionesses, £00 00s. 0d., per thousand." Builders should not fail to consult this oracle occasionally!!

### TO CORRESPONDENTS.

**CHURCH "RESTORATION."**—We may oblige a correspondent and others on a future occasion by saying what a "restoration" is and is not, as at present viewed. Madame Roland, the French heroine, once exclaimed: "Oh, liberty, liberty! how many crimes are committed in thy name?" The same might be said in respect to a number of our church "restorations."

**CITIZEN.**—The Corporate accounts, we admit with you, are a "wonderful piece of cookery," and possibly the auditor knows it, for the "sundries" and other "incidentals" must have opened his eyes.

**ANTIQUARY.**—Will be continued as soon as materials are amassed.

**C. B. (Belfast).**—We would like to see the sketches first before promising.

**A BUILDER (Kingstown).**—The block of buildings does not evidence anything novel to warrant the course suggested by you.

**CLOWLIFE.**—We have no doubt but in the course of a few years building will be rife in the district north of the river. Had a direct road been constructed half a century since on a line with Russell-street, crossing the Tolka and joining the Goosegreen-road, the neighbourhood would now be a vastly improved one.

**J. B. B. (Dundee).**—Not to hand in time for notice in present issue.

**J. J. P. (Belfast).**—Thanks; but received too late.

**W. M. (Derry).**—Drawings safely to hand. Shall attend to other matters soon.

**MESSRS. EARLEY AND POWELLS** beg to announce that Messrs. John Hardman and Co., of No. 1, Upper Camden-street, have resigned the business of Artists, Sculptors, Church Painters, and Metal Workers, in their favour.

Earley and Powells have added to the above mentioned business the Painting and Staining of Windows for ecclesiastical and domestic buildings, under the management of Mr. Henry Powell, who conducted the Stained Glass Department of J. H. and Co., Birmingham for many years.

Mr. Thomas Earley is the only Church Decorator living who was taught his profession by the late A. Welby Pugin.

E. and P. being thoroughly practical men in each Department, are enabled to supply real artistic work at a moderate cost. They, therefore, respectfully solicit the patronage of the Clergy and Gentry of Ireland.

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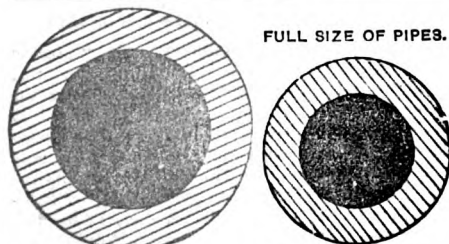
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In consequence of the public fraud and exorbitant charges so often and so justly complained of, J. W. solicits his friends and the public not to permit their credulity to be imposed on, but to visit his establishment and choose for themselves.

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Russell Place, Dublin,  
Undertakes all manner of Building Work in Town or Country.



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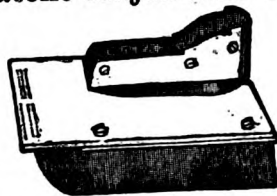
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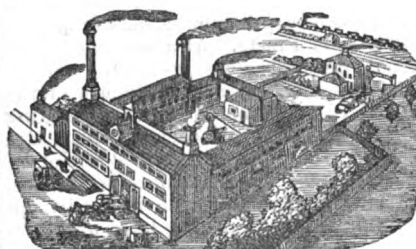
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N.B.—C. W. H. begs to inform his numerous Friends and the Public, that having extended his Premises, he will undertake all kinds of Masonry, Architectural Stone and Wood Carving and Modelling, upon the shortest notice.

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# The Irish Builder.

VOL. XVII.—No. 379.

## *Fine Arts in Dublin Fifty Years Ago.*

**B**EFORE the incorporation of the Irish artists in 1821, and the building of the Royal Hibernian Academy in 1824, it was a matter of complaint among the profession that the absence of a royal charter was a great drawback and injury to the profession and advancement of Fine Arts in this country. It may be well doubted, however, if a royal charter in itself can produce any magical effects if a love of Art for its own sake does not exist among the people, and if inferior works are continued to be produced year after year. The Royal Academy of London was founded as late as 1768, yet between that period and 1800 there were several exhibitions of painting and sculpture in this city, and notably between the era of the Irish Parliament, embracing the last eighteen years of the last century. Apart altogether from any political considerations, it must be admitted that the Act of Union proved fatal to the progress and extension of the Arts in Ireland; and the effect of that act was grievously felt for at least the first twenty-five or thirty years of the present century. There are many who still consider that the effects of that act are still to be seen, although two-thirds of a century have elapsed since the union of Great Britain with Ireland.

In a short time after the Union, a large portion of the wealthy nobility and gentry in Dublin gave up their town mansions and passed over to London, and many of their superb private edifices were converted into public offices, and some of them remain so till the present hour. It may be noticed here that in 1764 the Irish artists associated in Dublin erected a large building in William-street, called the "Exhibition Room"; but after a while it was found the emoluments of the exhibition were insufficient to pay the interest of the debentures which had been issued to create a building fund, and the consequence was that the house devolved to their agent, who had advanced considerable sums for its completion. This building at the corner of Copinger's-row, was afterwards known as the City Assembly House, and was used by the Corporation for their meetings down to the period when they removed to the Royal Exchange, their present place of meeting.

The next exhibition of note was held in the Irish House of Lords by the permission of Lord Hardwicke. Some years afterwards the Duke of Richmond, when lord lieutenant, instituted or helped the establishment of a society of arts, and in 1810 an exhibition was held, under his patronage, in the Dublin Society's House, Hawkins-street, now the Theatre Royal building. At this exhibition several works of varied merit appeared. After this time considerable dissension sprung up among the artists themselves, which had, no doubt, an injurious effect, and abated national interest in their welfare, and

year by year witnessed one or more of the most promising of the native artists removing to London.

A new society was instituted under the patronage of George the Fourth, when Prince Regent, for exhibiting the works of the old masters, and these exhibitions took place in the Dublin Society's house, in Hawkins-street, but they did not continue very long, having ceased on the removal of the Society to Leinster House, Kildare-street. This was about the year 1815-16. In 1821 an exhibition of painting and sculpture was held in the public rooms attached to the Royal Arcade, in College-green, but it did not possess much interest or prove very attractive, and a number of the pieces on view had been many times previously exhibited in the city. When Francis Johnston, the architect, the founder and first president of the Royal Hibernian Academy, conceived his noble idea and carried it into execution, for promoting the study of Fine Arts in Ireland, arts in general were at a very low ebb in this city. About the year 1821, it is stated, there were about fifty artists resident in Dublin, but of these, not more than six or eight were enabled to live by the legitimate exercise of their art.

Among some of the conspicuous native artists who had retired from this city to London, at that time, and whose names were favourably known before the Union, were—Barry Barret, Shee, Peters, Mulready, Thompson, and others. These all were distinguished artists, and became more so afterwards. They incorporated themselves with their professional brethren in London, and met with an amount of patronage that, owing to the altered state of the times, was not possible for them in Ireland. There were several artists after the Union, who hung on by the fallen fortunes of their country, and continued to reside and practise in Dublin up till their death, and some of these formed the early members of the Royal Hibernian Academy. Among these were—Ashford, Hamilton, Roberts, and Comerford, and later practitioners. The late George Petrie, the distinguished antiquary, was a talented and promising artist fifty years ago, but during his life, his activity with the pen and pencil far exceeded his efforts with the brush. Petrie and others of cognate tastes clung to Ireland, and though they died comparatively poor, they died respected.

We must not omit to mention that during the last century and the present, the school of the Dublin Society helped to some extent in advancing the interests of Art, and turned out several pupils from time to time who distinguished themselves in different fields. The most notable of the pupils of the Dublin Society's School, in the early part of this century, followed the fortunes of their distinguished fellow artists, and settled down in London. Fifty years ago and upwards the teaching in the then Dublin Society Schools was of a very limited character, and the course of instruction gone through cannot, of course, be compared with the improved system of the present hour. At that time, and for some years previous and subsequent, the master of the Figure School in the Dublin Society was Mr. Robert L. West; the master of the School of Ornament and Landscape Drawing was Henry Brocas; and the master of the School of Sculpture, Mr. John Smyth; and that of Architecture was Henry Aaron Baker. Both West and Brocas and Smyth

belonged to a family of artists long connected with the city, and Mr. Baker was an architect of repute, of whom James Gandon had a high opinion, and was recommended to the authorities by the latter as a fit person to be entrusted with the carrying out of public works, after the retirement of the great architect to whom this city owes so much of its architectural grandeur. It would ill become us at the present day to be oblivious of the labours of these men, though the deficiencies of some of them would be very apparent were they living now. They did their best for the advancement of Art and their profession in Ireland. Smyth, father of Edward Smyth, was the founder, it may be said, of the School of Sculpture in Ireland, and his sons, and some of his grandsons, though personally unfortunate, executed works of Art they need not feel ashamed of.

Notwithstanding the low state of Art, or rather the low state of the patronage of Art in Dublin fifty years ago, the city contained several valuable collections in the hands of private persons—lords, ladies, prelates, and merchants. The paintings by the old masters were many in this city, and among the most valuable were Lord Charlemont's collection in Palace-row, Rutland-square; the Earl of Farnham's, ditto; the Marquis of Waterford's, Tyrone House, Marlborough-street; the Hon. and Rev. Mr. Pomeroy, Merrion-square; William John Moore's, Rutland-square; the Provost's, Grafton street; Major Sirr's, Dublin Castle; John Boyd's, Stephen's-green, south; Alderman Cash's, Rutland-square; Thomas Manning's, Gloucester-street; Henry Manning's, Grenville-street; Lady Harriet Daly's, Henrietta-street; Richard Power's, Kildare-street; and Francis Johnston's, the architect, Eccles-street. The latter was a very extensive and fine collection, and, besides paintings by the old masters, Mr. Johnston had several by native and British artists. Mr. Johnston took great pride in his collection. His chief works were hung in a rotundo, which he specially erected for the purpose, at the rear of his house in Eccles-street. Major Sirr's collection contained a number of very valuable paintings by the old masters. During the troublous period of the Irish Rebellion, the celebrated major got possession of objects of art in a not very honourable manner. Whether he was naturally fond of Art for its own sake we cannot say, but during his long public career he evidenced a great desire for "collections."

The list of private collections we have given are only a few of what existed in Dublin fifty years ago. The above could be seen without much difficulty by visitors and lovers of Art; but there were other collections in the city that were jealously guarded from the "vulgar gaze." To trace the history of the above collections, and how many of them have been distributed and passed into the possession of other families, would be a difficult task; but knowing the vicissitudes of works of Art, particularly of those by the old masters, and the increased value which lapse of time and Art culture is adding to these works, we would be safe in asserting that only a tithe of the paintings that formed the Dublin collections fifty years ago are now in this country. From an Art point of view the loss of valuable collections to Dublin is a serious loss. While here, they represented wealth and a resident nobility and gentry;



they brought visitors to our shores, and therefore they were valuable for the study of our artists who would not be denied the liberty of seeing them.

Compared with the present day, the young artists of Dublin fifty years ago had not so many facilities for study. Nature, to be sure, was open to them in mountain and in valley, on river bank and on the sea shore, but public museums and national galleries were nowhere; with the age of cheap literature and its surroundings, new fields of study were opened for the practice and profit of the struggling artist. "Pot boilers," no doubt, are painted still, for the unknown artist must live somehow; but even for "pot boilers" there is a market now which did not exist fifty years ago, save to a very limited extent. Prosperous traders and shopkeepers now are lovers of Art in a way which their brethren of fifty years ago knew not. Then it was the nobility and gentry who patronised Art and were its chief support, though the majority of them, it must be confessed, knew but little of the true principles of Art. Now, almost everybody professes to have a love of Art, and tradesmen, shopkeepers, and others crowd their dwellings with bad, good, or indifferent pictures, but a true love of Art, withal, is advancing.

We will not attempt to estimate the exact state of Art in Ireland at present, but we may remark that the same complaints that might be and were advanced as reasons for the low state of Art patronage in Dublin fifty years ago, cannot be reasonably or honestly advanced to-day by our resident artists—other arguments must be found. We are behind England half a century in manufactures and trade of all kinds. England is wealthy, Dublin is poor. We have mental culture and manual skill; but neither in capital, enterprise, nor numbers can we compete with a country so far ahead of us as England. True, Irishmen are contributing a good deal to the mental and physical power of England, and prosperity in arts as well as in trades is the result. With the growth of industries in Ireland and the spread of education, Art must improve, and our present Art Schools in Dublin and elsewhere in the provinces are contributing powerfully to that end. It is a matter of regret that the Academy which Francis Johnston founded half a century since has not been better supported and better managed; but we do not despair of seeing Art in Ireland in a respectable if not flourishing state before very many years.

#### MORE LAND; OR, THE ENLARGEMENT AND ENRICHMENT OF IRELAND.

If some one was seriously to propose a plan whereby the area of this island could be considerably enlarged, and, as a consequence, become capable of supporting double or three times the number of its present population, the enthusiastic proposer would, no doubt, at first sight be looked upon as a visionary. Yet our visionary's proposal is not only possible but practicable. The area of Ireland can be considerably enlarged—thousands of acres of good farm land can be produced, and numerous sites for the building up of townships, at present either in the form of useless arms of the sea, slob lands, or marine marshes. We have continually pointed out for years in these pages what can be done by reclamation of waste land, whether by seaboard or inland by lake or under bog.

The Dutch Government, between 1828-40, reclaimed, near Rotterdam, a piece of tidal land embracing an extent of 14,820 acres once covered with water from 12 to 16 feet deep, at a cost of £22 per acre, as the work of pumping was done by windmill. The Haarlem Meer, between 1889-1851, covering 45,230 acres, was drained and reclaimed by steam power, lying under a depth of water equal to the former. This was accomplished at a cost of £19 per acre. This land reclaimed was sold by the State in lots of forty acres or upwards, free of any taxes for twenty-five years after sale. They are now worth from £70 to £80 per acre, and would rent at £3 per acre. On the line of the Amsterdam Ship Canal, the Dutch are at present reclaiming 12,500 acres valued at £66 10s. per acre when reclaimed, and soon the State will have entered upon another enterprising work of reclamation—the embanking and draining of 487,500 acres of the Zuyder Zee, varying in depth from 10 to 26 feet, at the proposed cost of £16,250,000, or £33 6s. 8d. per acre.

When we look at this work of reclamation, and consider that in this country there are several thousands of acres not submerged by 10, 12, or 16 feet, but only covered at high tides with 3 or 4 feet of water, and at low tides with a few inches, and between the tides for several hours not covered at all, we are struck with amazement at the supineness of our Government and our people that such a promising and profitable enterprise should remain so long neglected.

A correspondent writing a few days ago in our contemporary, the *Saunders*, called attention to the several estuaries around the coast of this country which might be reclaimed, and where little or no pumping would be needed. For instance, the inner harbour protected by Dorrins Island and Coney Island from the Atlantic gales, there is an area reclaimable of 28,000 acres owned by the Crown, and on the north side there are about 80 acres, the ownership of which is doubtful. In Drumcliff Bay there are 1,000 acres; in Milk Haven nearly 1,500; in Ballysodare Bay 1,000; on either side of the Ballysodare and Sligo roads belonging to the Temple House estate and in Killala Bay, over 2,000 acres. These include only tidal and slob lands of half-tide mark not requiring pumping, but could be made self-discharging.

At Fairview, Clontarf, on both sides of the line of the Northern Railway there is slob land of 1,000 acres and upwards, which could be easily reclaimed, as we pointed out often before. The reclamation of a large portion of this slob is, we believe, anxiously desired by the lord of the manor and by others; but the Board of Trade will not see their way to it at present, on the foolish supposition that this reclamation would injure the Port of Dublin! We would like to be informed in what manner, or in what form the injury would develop itself. This work was nearly attempted three quarters of a century since; but, though then determined upon, it remains still unreclaimed. The work of reclamation could be accomplished much more easily at the present day. Between Blackrock, the South Bull, and Irishtown, there is an area of 2,500 acres, easily reclaimable; but, in relation to the South Bull, we refer our readers to a letter of Mr. George H. Kinahan, C.E., of the Geological Survey, given elsewhere in our columns.

Our contemporary, *Saunders*, says:—"If the foreshore at Sandymount, as far as a man can throw a dart from the extreme edge of the low tide, has not been leased to the lordship of Pembroke, the Corporation have a splendid property at their disposal whenever they adopt some such sewage reclamation as that proposed." Lord Pembroke, we understand, leases from the Corporation for an extended period, and for reasons that may be guessed will not move in the matter of reclamation. The fear of impairing property in Sandymount should not be allowed to stand in the way.

In connection with reclamation on the south side, it may be remembered that Parliament would not pass that part of Mr. Barry's Railway Bill which included the proposed reclamation. Once, however, the work of reclamation is commenced in earnest, all fanciful objections will have to give way; for reclamation means more land for the country, more food for the people, and more employment for the working classes, and the thirst for land is growing deeper and wider every day—and it is a natural yearning.

In England also we might point out large tracts which have been reclaimed of late years in various places. At Chester 2,500 acres have been recently embanked; and along the coast of Wales this year we witnessed large tracts of tidal land reclaimed, which half a dozen years ago we saw covered with the tide. This reclaimed land is now built upon, and large manufactories with their tall chimneys are standing where once the sea broke over, and the busy din of industry is rife around and about.

Some small reclamations have taken place on the shores of Lough Foyle, and also at Clew Bay, which are turning out profitable enterprises. The Crown lands that could be reclaimed in Ireland, as we pointed out, are extensive, and the work of reclamation practicable and easy. These lands the State might sell with Landed Estates Court titles in their present condition; or otherwise, embank, drain, and then dispose of in lots to suit purchasers, or, say, in lots of 40 acres or upwards, the same as has been done in Holland.

We hope to see the subject of Irish land reclamation debated seriously in next session of Parliament, when a return upon the subject will be moved for. The wealth unutilised in connection with our foreshores and inland bog lands in Ireland is simply incalculable and incommensurable. There would be no need for farmer or husbandman to emigrate to satisfy his natural craving, if the work of reclamation in Ireland was once seriously entered upon. Of course at the worst, the work pointed out cannot be very many years longer delayed. If land is not won back from bog and mountain waste, and from our foreshores, the landed proprietors of Ireland, to meet national and imperial exigencies, will have to surrender portions of their large estates for the purpose of cultivation, and in view of the future food supply of the empire.

A LESSON TO OUR WASTE LAND PROPRIETORS.—The Duke of Sutherland, besides steam and other machinery employed on his waste lands, has 500 able-bodied labourers at work; he has had a church built for them, and he pays a clergyman to attend to their spiritual wants. We are glad to learn that Mr. M. Henry, M.P., and Mr. Twining are doing much in Connemara. Mr. Henry is about getting steam machinery to aid in carrying on his reclamation works.

## THE LATE CHARLES BIANCONI.

SINCE our last issue there has passed from our midst a remarkable man, who deserved well of this country. So little has been heard of him for the last ten or fifteen years, that there were many who thought he had quietly passed from among us unnoticed. As far back as fifty years Bianconi's name was well known and in everybody's mouth, and travellers, tourists, and others owe to him a debt of gratitude, for, long previous to railroads, aye, and even before the country was mapped out for regular mail routes, Bianconi's car system for cross roads was in operation. As a poor lad and a stranger to this country he began his career, and he knew what it was to be footsore and weary, for many a mile of road he traversed himself in disposing of his stock which he carried on his back. He was not long in discovering a want that existed and supplying it, and from the humble beginning of one car and horse he in a few years was gratified to see nearly half of Ireland ramified by his car system, and which, all things considered, was well organised and managed. At present it is not our purpose to trace his career step by step from comparative poverty to wealth. He was the architect of his own fortune, and he deserved his success. His life and labours afford a good example to Irishmen, and he was ever ready with counsel and help for those who truly deserved it. Some years back Mr. Bianconi took great interest in all movements set on foot for the social improvement of the country, but he never was much of a politician. In his retirement, as well as in his active business days, he was respected; he was never ambitious for public honors, so he tranquilly passed away a plain country gentleman and D.L., at the advanced age of 89, at his residence, Longfield House, Cashel. His interment took place on 25th ult., at Boherlahan, attended by a vast concourse of people of all creeds and parties, who respected him in life, and were anxious to pay the last honours over his grave.

## THE HOME SECRETARY ON EDUCATION.

## A LESSON FOR WORKING MEN.

THE Home Secretary, Mr. Cross, at the opening of a bazaar at Orwell, near Wigan, a few days ago, in aid of funds for the building of a new church school, delivered a practical and excellent speech. In allusion to the Elementary Education Act, and the necessity that exists for providing and imparting a higher and more practical education for the mass of the people, Mr. Cross observed—

People must not run away with the notion that we are going to be content with the sort of education we had before the passing of the Act; and you will find it is much more expensive to carry on schools now than it has been hitherto, and that for many reasons—for this reason, amongst others, that a higher standard of education is now required by the country. The population has largely increased. There is a great demand for the higher class of teachers, and the higher class of teachers very properly demand a higher rate of salary than they have hitherto been accustomed to receive; and they will receive it; and you won't be able to carry on your schools at the same moderate cost you have paid in years past, but you will find gradually that the expense must necessarily increase; add to which all the staff will have to be greater, and the appliances of school teaching generally will so much the more require to come up to a certain standard. All that requires earnestness as well as unity of purpose, because we must remember that in this, as in other matters, the sufficiency of the day is really and practically, in this age of progress, the insufficiency of the morrow. It is all very well for you to build schools, and to have as much accommodation as your district requires; but there is not the smallest use in building schools unless you fill them, and it is very much easier to build a school than to fill it. I see in this, as in other districts, that which nobody wishes to see—a great number of children running about the streets who ought to be at school; and when you come to compare these districts that are carried on without school boards, and those districts where school

boards exist, and where they have compulsory powers, you will find it will require great exertion to get children to school. There was an Act passed not long ago for compelling children employed in agriculture to go to school, but the framers of this Act—it was passed by no Government, but by private members—did not take care that there should be provision for putting it in force, and the consequence is that it is not put in force, and the children do not go to school. Before it came into operation it had a great effect. From one end of the country to the other people in the agricultural districts were so frightened at it that they sent their children to school, but when it became law they gave up their good habits, and many children who were in the habit of going to school were taken away and again put to labour. I wish I had here for the moment some of the colliers and colliers' wives whose children I see in the streets, because I should have liked to say a word or two to them. I wanted to say this. They are apt, many of them, with a false notion as to what we mean by education, to run away with the notion when we say that we want them to be educated we want them to be taught, and have things put in their heads which will unfit them for the calling and the life which probably they may have to occupy. Nothing can be more untrue. There is no doubt whatever in the excellent teaching which is given now in our elementary schools, opportunity is given to a clever boy or girl to rise very much above the station in which he or she was placed. But that only applies to the few. The object of education is not to unfit people for their calling in life, but to make them more fit to do their duty, and to do it in a way in which they can enjoy life themselves and do good to others. It is not mere book learning that I am talking of. That is not the object of these schools. It is the school discipline, the training of the moral mind of the child, the teaching him how to teach himself, the self-control and the self-respect which he gets at school, which does more for him than all the book-learning that you put into his head. If these people were here I would appeal to them in this way, and I think I could do it with strong effect. I don't believe that any other form of self-denial will bear such good and lasting fruit as that of allowing a child to go to school in its tender years, and keeping it from work until it has been to school for a certain period. How children are to be got into schools is a problem which of course must be solved, and I earnestly implore you to solve it for yourselves. The State has said that there shall be school accommodation for every child throughout the length and breadth of this country. Do you think that when the schools are built, and the State finds that they are not filled, that it will be content to rest there? Depend upon it, the State will before long again interfere, and see that the children are brought to school. Is this not plain reasoning? You do not allow a parent to let his children go into the street without clothes, for the sake of decency. You will not allow a parent to let his children, if he can afford it, go into the street without food, for the sake of humanity. And what right has a man to let his children go into the streets without education, and become a prey to all the criminals who are about him, to lead a life of crime, of misery to himself, and distress and wrong to others, and of enormous expense to the country? You cannot, in any reason, suppose that a man who has the power of sending his child to school has a right to neglect to teach him, any more than he has to feed or clothe him. If he does not do it he must be made to do it, and the question you have to solve is whether, without assistance from the State, you can succeed in getting your children to school, for at school they must be, and the State has a right to take care that it is not flooded with persons who are living a life of crime and misery all around them.

Between prelates and politicians of rival sects and parties in Ireland, education is made a battle ground, or rather a bone of contention. Not how to educate the children of this generation as they ought to be educated in view of their future trades and occupations, but to train them up with religious bias and prejudice seems the order of the day. Religious instruction is, of course, good and needful, but without a good primary and practical education, boy or girl is unfitted for the battle of life. We fear much that in another seven or ten years Ireland will be far behind the rest of the British Islands, for the newly-formed school board scheme of the sister kingdom must tell wonderfully in favour of the benefits conferred by the Elementary Education Act in the matter of practical and technical education for the working classes. Whether

the Act is unsuitable, as a whole, for application in Ireland, is not a question we desire to raise here at present; but on the other hand there can be no question that means must be taken sooner or later in Ireland, irrespective of creed or party, to make education compulsory.

## SEWAGE AND RECLAMATION.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—The Main Drainage of Dublin is still only talked of, therefore it seems allowable to put forward a scheme in which the drainage of the south side and reclamation of the South Bull are combined. By this scheme the South Bull would be divided into two lots, each containing about two square miles, and separated from one another by an east and west canal, running from a point on the shore line about half way between Sandymount-green and the Martello Tower seaward. The river Dodder also would have to be diverted from the bend at which Haige's distillery formerly stood, and carried thence in a canal to the coast line, immediately east of Leafield, from which it would run southeastward along the coast till it joined into the east and west canal. The south side of Dublin and suburbs would be divided into two districts, one a high level, the other a low level. From the low level district the main sewer should be brought under the Grand Canal in the level above Mount-street lock, and from thence to the point where the Dodder was diverted, and from this point across the bed of the present river and along the northward margin of the proposed canals to such a point as was found most efficient for the discharge of the sewage. From the highland district the main sewer should have to come under the level of the Grand Canal above Charlemont-bridge lock, and from thence through Ranelagh to Donnybrook where it would run under the Dodder, and from that to the strand at Merrion. The advantages of such a scheme would be—Very little water would be subtracted from the discharge in the Liffey, most of the effective water cut off, being that which be contained in the bed of the Dodder between Haige's distillery and Ball's-bridge during high tide; while all detritus at present carried down by the Dodder would be cut off, and the bar in the Liffey now due to its outfall, would disappear. Ringsend, Irishtown, and Sandymount would be relieved from their, at present, offensive muddy flat, and in its place they would have green meadows with a clear, clean, sandy, tidal estuary or creek. The diversion of the Dodder would cost nothing except the purchase of the land, as the stuff taken out of the canal would make the embankment (materials for which otherwise would have to be procured elsewhere), while a long portion of low level sewer could be constructed alongside at the same time as the canals were made. The reclamation could be carried on in sections. The north portion of the South Bull, situated away from the land being first reclaimed, and thereby showing to the inhabitants of the adjoining country that sewage meadows are not offensive. After this portion of the reclamation was shown to be a success, the reclamation of the south portion might be proceeded with. Such a process would not impede the progress of the drainage of the high level district, as prior to the main sewer from that level being constructed, its drainage could be carried by a temporary sewer (between Charlemont and Mount-street bridges) into the low level drainage system. And lastly—eventually the citizens of Dublin would have a return (in the rents of the sewage meadows) for their money laid out on the main drainage.

G. HENRY KINAHAN.

[Mr. Kinahan's suggestions are very well entitled to more than a passing consideration, and we hope they will receive it. On the subject of reclamation, as a whole, and as profitable enterprise, we have spoken elsewhere in our columns.—ED. I. B.]

## HANDICRAFT AND HANDICRAFT TOOLS.

(Continued from page 247.)

ALTHOUGH the tendencies of men's minds are to the transference of bodily labour to machinery, yet there will ever remain large tracts of land where machine-driven tools cannot be utilised, and where handicraft tools are alone available. Further, it must also be considered that our machine-driven tools are but handicraft ones, formed for handling by a power which has not the varied adaptability of the human fingers, arms, feet, and legs.

To pass from the earliest suggestions of bronze implements to the first really true unquestionable period of metal tools, the forms and modes of using which are so clearly shown pictorially, we are introduced into Egypt.

Strange, indeed, is the retrospect which places us so suddenly upon a people where civilisation and art and science seem to our modern eyes to have sprung Medusa-like from a primeval social chaos. But so it is; when we enter upon Egyptian history, which in its truthful clearness about tools enlightens a gloom as a flash of lightning would do a moonless winter night, we are as much perplexed with the embarrassment of material as we had previously been with the dearth of it.

The paintings and sculptures of Egypt and Herclaneum place very clearly before us the tools in use so far back as pictorial history can carry.

It may with apparent truth be asked why we should inquire into the tools used when works of great magnitude and of such artistic skill are met with in Egypt and in the museums of Europe and Asia. Surely we may accept the use of tools and contrivances without further research. Not so; there are very many useful lessons in these tools—there is much to be learnt from searching into old ways, and many a disappointed inventor might now be in ease and affluence had he patiently studied the works not only of those who immediately preceded him, but even of these far distant Egyptian artisans.

Although prior to the time of which we are speaking tools have been found in the earth, yet no works—unless such implements as arrows, hooks, needles, &c., be regarded as works—done by these stone tools have reached our times. The oldest known combinations of materials constituting what may be called works of men, and existing as such at the present day, are the pyramids of Egypt. The tools and contrivances used in the building of the early pyramids are not known. Those who have investigated the subject place the erection of these early pyramids about 2120 B.C., i.e., about a century before Abraham arrived in Egypt, and (1875+2120) 3,995 years ago. There are no hieroglyphics on these, and they do not carry their history as the tombs we are to speak of do.

Reproductions (even to an imitation in the colouring) of drawings and sculptures in ancient Egypt have occupied the attention of artists of great repute in France, Italy, and Prussia. The volumes containing these illustrations are large, the size of the plates being two feet three inches by one foot eight inches, and sometimes more. The French reproduction was a result of Napoleon's invasion of Egypt in 1799; it consists of eleven large folio volumes of plates, and entitled *Description de l'Egypte*, 1809-22 (this is in the library of the British Museum); the Italian one is by Rosellini, *Monumenta dell'Egitto*, 1832-44. The Prussian one is by Lepsius, *Denkmäler aus Ägypten*, 1848-56. These are in the library of the Royal Institution, and to that by Rosellini, the plates in which are coloured as the originals, we are indebted for the diagrams on the walls.

With reference to the fact that there are numbers of wall paintings in this past age representing practical arts, it should be remembered that these arts must have been in high repute, for long after the dates now re-

ferred to wise laws were instituted in Greece, by which everyone was forbidden to be idle, and each was required to give an account to the magistrate of his application to some pursuit. But a person was not permitted to exercise two arts at the same time, on the ground that he who undertakes many things generally executes everything badly.

To return. As with ourselves so with the Egyptians. The son generally followed the employment of his father, or some other relative, and the trades, at least many—especially the carpenters—were formed into guilds or societies, for mutual improvement. Unfortunately for centuries past handicraft has been despised. Not so in early days; not so when the guilds in London held their own. We may be sure that they who by their handicraft could contribute so much to social comfort as cabinetmakers, carpenters, quarrymen, stonemasons, sculptors, shoemakers, potters, dyers, glass-blowers, engravers, weavers, fullers, tanners, founders, smiths, papermakers, were not lightly esteemed. Even in Herclaneum and Pompeii, as well as in Egypt, there are traces of this respect, and the same respect is found at Athens and at Rome.

One or two words upon the representations of these tools at all in sculptures and drawings. The artisans of Egypt, much like the best class of handicraft artisans among ourselves, were attached to their tools. Some may smile, but it is nevertheless true, that a good handicraft workman entertains true and real affection for the implements he daily uses, especially those which are his agents in the production of approved work. This affection perhaps cannot be appreciated where men work among machines and are called "hands," as though heads and hearts were not wanted.

One evidence of this affection may be seen in the diligence with which a careful and skilled artisan polishes and preserves from dirt and scratches, the tools he most prizes, and by which his best work is done.

Transfer and intensify this affection, and we need not ask how it happens that what were much loved were often drawn. In Egypt the attachment or affection seems to have been so strong, that the workmen called their tools by pet names, as we do children, and even dogs and cats. Not that the names were characteristic—they were simply terms of (may we say) endearment.

In the days of which we speak (and the feeling still prevails in many parts), it was considered a duty to the dead to surround them in the tombs with that which in life they loved. "Sutteeism" in India is the operation of this feeling. Hence not rude drawings only, but actual paintings and sculpture of tools are found, and in some cases selections from, and even collections of tools. A collection of tools belonging to a cabinetmaker with his "bass" or basket, has been found in one of the tombs at Thebes. In cases 42 and 43 in the first Egyptian room in the British Museum may be seen the basket and the tools.

A brief enumeration of the contents of this bass and case may interest some.

Bass of palm fibres, neatly plaited with cover.

Bell-shaped wooden mallets or hammers, such as are used by masons at the present day.

Nails of bronze.

A skin pouch for holding small tools and nails.

A horn for oil for sharpening tools, such a horn as may be seen at this day in a country wheelwright's shop.

Drill bow, drill spindle, and drill cap.

Chisels.

Hatchet heads.

Adzes, knives, and chisels with wooden handles.

On one bronze hatchet, and one bronze adze, and one bronze saw is the name of Thothmes III. of 18th Dynasty, 1450 B.C. These, therefore, were in use (1875+1450) 3,325 years ago. And on other blades of axes is the name of Ata, an officer, in the

time of the 6th Dynasty. In addition to these, the Egyptian cabinetmaker had in his "bass," rasps, a plummet, and a hone. No unsuitable catalogue! It would be well, and a great gratification to many a householder, if when a joiner comes to do small repairs in a house he was as well supplied with requisite tools as these Egyptian workmen were.

There are also baskets made of fibres of the palm tree with which labourers removed earth and sand; just as labourers do in London at the present time.

The numerous photographs in this lecture-room of ancient tools and implements in the British Museum have been kindly lent by Messrs. Mansell, photographic publishers, of Percy-street.

These illustrations, and the objects for which they are brought before you, will lose much of their true interest and value, if even very briefly a statement be not made of the circumstances under which the originals were probably executed.

Those who investigate the ancient monuments of Egypt (and there are many who can do so, and speak with as much confidence of the meaning of the hieroglyphics as one who reads a book in a language he thoroughly understands) tell us that no very reliable information as to dates have been found previous to the reign of Osirtassen (1st) who lived about 1740 B.C. (1875+1740) 3,615 years ago: he was of the 16th dynasty of the Egyptian kings, and reigned as king for forty-three years, and is supposed to be the Pharaoh who promoted Joseph.

During his long and prosperous reign he encouraged the arts of peace, and employed many persons in buildings and excavations. At Beni-Hassen on the west bank of the Nile, lat. 28 N., long. 31 E., he erected grottoes or tombs, from which many of the diagrammatic illustrations are taken. There are thirty grottoes, which seem to have been the burial places of the principal families of the city of Hermopolis, a place on the opposite or east bank of the river. Some of these consist of two or three apartments, the largest being 60 feet by 40 feet. The paintings on the walls chiefly represent scenes of domestic or social life, and so give an insight into the habits and customs of the ancient Egyptians. There are processes in agriculture, in the manufacture of weapons of war, views of boats and of fishing, athletic sports, and the modes of executing various handicrafts.

Now there can be no doubt that the tools and contrivances represented on these tombs must have been in use long prior to the general adoption of them as types for mural painting.

It does not seem unreasonable to ask you to regard the diagrams before you as typical of the tools used in the days of Abraham, and very near the time when our Scripture history begins; for these tombs or grottoes were erected about 600 years after the Deluge.

From the sculptures of Beni-Hassen and on similar tombs at Thebes and elsewhere, we learn that the Egyptians were acquainted with the manufacture of linen, glass, cabinet work, gold ornaments, and numerous objects indicative of art and skill. That they played at draughts and ball as we play is also established by the sculptures here. That they made toys such as fishes, and dolls, and beads, and balls for their children as we do. That their dentists could not only fill decayed teeth with gold as our dentists do, but that they could insert false teeth and secure them to sound ones by means of gold wire, is established by the fact that such have been found where modern work was not likely to have been, even within the mummy cloths. That they could beat gold to a fineness nearly, if not quite equal to that which we have done, has been established by a careful analysis of the gilding found on the mummy cases.

That the diamond was used not unfrequently as we are now beginning to use it may be inferred from a passage in Jeremiah (17 v. 1), "The sin of Judah is written with a pen of iron and the point of a diamond."



You also remember that in the book of Job (said by some to be the oldest composition in the world) it is written, "Oh! that my words were graven with an iron pen and lead in the rock for ever" (Job 19, v. 24). It is curious to note in some of the sculptors' shops in London the durability of their monumental inscriptions is secured by the same process, viz., filling up the lettering with lead, and this is sometimes described as "*patent indelible lettering*."

An Egyptian painting in the grottoes of Beni-Hassen represents two glass-blowers at work. (Wilkinson's "Ancient Egyptians," vol. iii., No. 849, p. 89.) They are using long tubes, exactly as our workmen do at the present day, and but that these men are kneeling or sitting on the ground, as Indians generally do, and that the crucible in which the glass is being melted differs from ours, it might be said that the sketch had been made at Newcastle or Warrington. In the drawing in Rosellini's plates even the lump of plastic hot glass as taken out of the crucible is represented and coloured.

Glass beads, coloured in imitation of precious gems, are also found.

(To be continued.)

## PUBLIC RECORDS IN IRELAND.

(Concluded from page 256.)

We will conclude with this notice our extracts from the "*Fiantis*" of Henry VIII. In the following occur the well-known names of Eustace and Barnewell. The former name belonged to a family of large possessions and great influence in this country; but the close of the eighteenth century witnessed the descendants of the Eustaces in penury, and their once large estates in other hands. The Barnewells are yet a name of some importance in Fingal, but of these two families we may have something to say in detail on a future occasion.

1546.—License to George, Archbishop of Dublin, to alienate (with consent of the chapters of the cathedrals of Holy Trinity and St. Patrick) to Robert Eustace, prebendary of Malahiderte, and others, in trust for Patrick Barnewell, of Gracediewe, Esq., his heirs and assigns, for ever, the constableness of Swerdes [Swords] upon the death or surrender of Thomas FitzSymon also (in satisfaction of an annuity of £5 belonging to said officer) the Broode Meade, Delafeldes Park, Clonmethan, land in Swerdes upon the north of the bridge of Balhary, at the Holy Banks, and in the Castelfelde, on the east of the high road from Swerdes to Reekynore, held by Robert Brocton and Maurice Serjaunt, in the Castelfelde, held by Philip Gestil, near the road from Swerdes to Dreyhan, held by John Tipper; Whites Park in Swerdes, Roganston, in the parish of Swerdes, held by Philip Strong, Newhagarde and Curduffe *alias* the Bussshop's lande, in the parish of Luske. To be held for ever at a rent of £6 19s. during the life of Thomas FitzSymon, and 39s. thereafter.

1546.—Grant to Nicholas Pigote, of the office of soldier or gunner in the Castle of Dublin, upon the first vacancy. To hold for life.

1546-7.—Lease to James Bathe, of Dromnaghe, chief baron of the exchequer, of the tithes of the rectory of Testeldelane, County Kildare, parcel of the possessions of the abbey of Thomas-court, by Dublin. To hold for 21 years, at a rent of £5 9s.

1546-7.—Order of the lord deputy and council for a lease for 21 years, at a rent of £8 5s. 1d. sterling, to Rayney Bell, soldier, one of the king's retinue in Ireland, of Carten, in the parish of Maynothe.

It will not be out of place here to produce in full the order in council referred to above. It is stated to be the last form in which this kind of authority was issued, and it was the last year of the reign of Henry VIII.:

By the Lord Deputie & Counsaile. Antony Sentleger.

Memorandum — Fforasmoche as Rayne Bell, souldier, one of the king's maties Retynue

with in this Realme of Ireland, Hath long served his highness paynefully in the same. The right honorable Sr Anthony Sentleger, Knight of thorder and lorde Depntie of the same Realme, in consideracion of that his service, Hath graunted to hym the farme and occupieng of the towne called the Carten, in the parishe of Maynothe, and parcell of the same lordshipp, During the tyme of his Deputacion. Payng therefore thaccustomed Rent thereto belonging, that is to say, eight pounds fyve shillings and one peny sterling. Nevertheless for that it is oncertayne how long the said lorde Deputie shall Remayne in that Rowme, or otherwise being a man mortall, change this present life, whereby suche intrest as the said Rayney now hath in that farme were voyde and clerely extinct. Yt is therefore for his furdur securyte condescended and agreed by the lorde Deputie and others of the Counsaill, whose names be hereunto subscribed, that the said Rayny Bell, in Recompe of his good and paynefull service, And for the contynuaunce of the same in the king's affayres, shall have a sure lease made to hym of the said farme or towne of Carten for terme of twenty and one yeres, yelding therefore yerely suche Rent as he now paythe, with all other Duties and Customes going out of the same. And this or concordatum shalbe unto yow the lorde Chancellor a sufficiency warrant to graunt the King's maties brode seale upon the same. Given at Dublin the xxviii<sup>th</sup> January, in the xxxviii<sup>th</sup> yere of the Raigne of or soverayne lorde King Henry theight.

WILLIAM BRABAZON.

GERALD AYLMEY, Justice.

THOMAS CUSAKE, Magister Rotulorum.

The four following *Fiantis* belong properly to the commencement of the reign of Edward VI.:—Lease to Con O'Mulloy, late prior of Dorrowe, of the site of the priory, lands of Dorrowe, Newton, and Taghtillyn, rectories of Kylbryde, Ballygroden, Fryvenaghe, Kilpallyse, and Dorrowe. To hold for 21 years, at a rent of 5 marks.

Lease to Redmund oge Fitzgaret, of Rathangan, County Kildare, gent.; of Calloughton, parcel of the possessions of the nunnery of Kildare. To hold for 21 years, at a rent of 86s. 8d.

Grant to John Butler, gent.; of the office of principal or chief solicitor, vice Walter Cowley. To hold during pleasure, with a fee of £10. [Walter Cowley was appointed in 1587 to hold during good behaviour, with the same fee.]

Pardon to William Richin, of Glascarne, County Meath, husbandman, senr., and William Richin, of Watton, same county, junr., also of John Parker, of Holmpatrick, gent., constable of the Castle of Dublin.

The following *Fiantis* are without dates. The first bespeaks a Frenchman in office:—

Grant to Gabriel le Mayster, gent., of the office of chief sergeant of the County of Offall, Oregane, Kynnaleghe, and Ferkeall, parcel of O'Dempsey's County, called Ferryn Clondermott. To hold during pleasure, with such fees as the sergeant of any other county has.

Grant to John Rawson, knt., late prior of the hospital of St. John of Jerusalem, in Ireland, of a pension of £500, out of the Droghes by Kilmaynan. [It may be remembered that further back we gave an extract (1541) of a grant to John Rawson, knight, of the dignity of Viscount of Clontarf, to hold for life. Also of an annuity of £10 sterling, issuing out of the manors of Tassagard and Rathtowith, and of 500 marks sterling out of the Droghes by Kilmaynan (Kilmainham) and other possessions of the hospital of St. John of Jerusalem, in Ireland. We would like to know what land, locality, or property was denominated the "Droghes" by or in Kilmainham? We are not aware that the name occurs in any of our local histories.]

Here is another grant to one of the Talbot family:—

Grant to Robert Talbot, Esq., of Corbali, Talesbarne, Kilardan, Fyngowre,

Birrawght, land by Balmallice, Ballymarge, by Kilmannaght, and Kyng's Wood, by Tassagarde, County Develinia [Dublin]. To hold for ever, at a rent of 66s. 8d. for Ballymarge and Kyng's Wood, and 20s. for the remaining lands.

Livery to Edmund Buttler, knt., baron of Dunboyn, son and heir of James, late baron. Fine £50.

Lease to James Sherloke, of Waterford, merchant, of the preceptory or manor of Kilclogan and several lands [named], ecclesiastical property, in the counties Wexford, Waterford, Cork, Tipperary, Kilkenny, under king's letter, dated at Wyndesore [Windsor].

Lease to Nicholas Dowan, of London, merchant, of the site of the hospital of the B.V.M. de Urso, of Drogheda, lands, &c., in Drogheda Mylfelde, Wyne Myll Felde [Wind Mill Field], Kyllanayre, Carlyngforde, Dundalke, Glaspistle, County Louth, 2s. rent in Priortowne, rectory of Ennessmogh, and a chapel in Carlyngforde, County Louth. To hold for 21 years, at a rent of £19.

Lease to James Butler, Earl of Ormond and Ossory, treasurer, of all the possessions in Little Carricke, County Waterford, of the monastery of friars minors of Carricke aforesaid. To hold for 21 years, at a rent of 66s. 8d.

Lease to Robert Apryce, soldier, of the Banno, County Wexford, with the ferry of the Banno, parcel of the possessions of the Abbey of Tynterne, County Wexford. To hold for 21 years, at a rent of 4 marks.

Lease to Walter Cowley, of Browneston, gent., of the rectory of Aghetynagh *alias* Aghenynagh, and lands of Ballybroke, Grenan, and Aghtynan, County Kilkenny, or County of Ossory, parcel of the possessions of the Abbey of Thomas-court, by Dublin. To hold for 21 years, at a rent of 26s. 8d. [This was the Walter Cowley, the chief solicitor, who succeeded John Bathe in office. He fared well, as appears by these "*Fiantis*." The possessions of the Abbey of Thomas-court appear to have been large, as well as those of St. Mary's Abbey, and the hospital of St. John, Kilmainham.]

Lease to James Bathe, of Dromnaghe, gent., of Newton, in the Marche of Dublin, parcel of the possessions of the abbey of the B.V.M. [St. Mary's Abbey] by Dublin. To hold for 21 years, at a rent of £4 18s. 4d.

Lease to Leonard Gray, knight, lord Gray, viscount of Grane, of the site of the priory of Lowthe [and several lands named in Louth, with tithes, &c.]. Also site of the house of friars minor of grey friars of Waterford, with appurtenances,—also the site of the house of friars minor of grey friars of Trym, with appurtenances. To hold for 21 years, at a rent of £100. [Here were possessions worth several thousands leased at a nominal rent for the space of 21 years. It would be interesting and instructive if we could trace the subsequent history of the numerous lands named in Leonard Gray's lease, and how much of them ultimately became the permanent property of himself and descendants. Verily adventurers and others fared well in Henry the VIII.'s and subsequent reigns.]

Lease to Edmund Hyffernan, of Cashell, chaplain, of the site of the abbey of the B.V.M. of the Rock of Cashell, lands, Hore abbey, Cashell, a gallon of ale from each brew of ale for sale in Cashell, called the Mary gallons, lands, Graungeery, little Grange, rectories of Hore abbey, Graungeery, little Grange, and Lasmalyn, and the vicarage of Rochston, County Tipperary. To hold for 21 years, at a rent of £15.

Lease to William Brabazon and Richard Delahyd, of the Grange of Clare, diocese of Kildare, the tithes, &c., of Donarde, Kylbele, Cryhelpe, and Welchston, diocese of Dublin; Cloughir, diocese of Cashel, Cordengyn, Ballencall, and Kylshane, diocese of Emly, Arbystyll, Ruskagh, Templemurrye, and Rathough, diocese of Leighlin, demised by Thomas Everarde, late prior of St. John the Baptist without the Newgate of Dublin, to the Earl of Kildare, at a grain of corn for the first six years, and 13s. 4d. for the re-

mainder of the term of 81 years. To hold for 21 years, at a rent of 8s. 4d., and paying the rent reserved by the prior.

Grant to William Brabazon, Esq., of the site of the monastery of St. Thomas-courte, near Dublin, the malte myllne, the wood myllne, and the double myllnes, land called Denover [Denore], and appurtenances near the said house. To hold for ever by the service of the twentieth part of a knight's fee, and a rent of 18s. 6d. sterling.

[The above Fiant belongs to the year 1545, for in that year Henry VIII. granted the monastery with a caracute of land to William Brabazon, ancestor of the Earl of Meath. The old manor of Thomas-court and Donore is well remembered by many of our citizens. Before its abolition with the other manor courts north and south of Dublin the appointment of the seneschal, registrar, &c., of the Thomas-court manor was vested in the Meath family. The old manor court in our young days was a wretched old brick building. Here small debts were sued for before the seneschal, whose power at one time was considerable. This court, we believe, was first established in the reign of King John, and its jurisdiction once extended over the greater part of that known as the Liberties, and embracing a portion of the environs of the south side of the old city.]

Here is a very interesting Fiant that reminds us of the *nom de plume* of the late Rev. Cæsar Otway, the racy essayist and antiquary, in the pages of the *Dublin Penny Journal*. The author of "A Tour to Connaught" and "Sketches in Erris and Tyrerley" was not a little proud of his sou-briquet of "Terence O'Toole." Peace be with him: his notes by the way from Dublin to Athlone were piquant and interesting; and in Ireland at least he ought not to be forgotten, for he was one of the band of pioneers who helped in establishing a cheap and racy and withal wholesome native literature:—

Grant to Terence O'Toole, gent., of the manor and castle of Powerscourte, County Dublin [now Wicklow], lands, Powerscourte, Kypeter, Kylcolin, Beanaghbege, le Ouenaghe, Ballycoortie, Templebogan, Kiltagoran, Cookeston, Anecrew, Kyllmolinge, Ballinbrone, Killegan, and Maynster, in Fercollin, County Dublin. To hold in tail male by the service of one knight's fee, and a rent of five marks. Provided that he keep the Castle of Powerscourte in good repair, that he cause the inhabitants of all the lands to use the English habit and language as much as they can, and to till the tillage lands, he building houses for the husbandmen; that he shall not keep kern without permission of the deputy, or levy any black rent, coyn, or livery; that he shall clear the way through the woods and mountains whenever directed by the deputy; that he shall answer the king's writs and attend the deputy with his men at all hostings, and that he shall not support the king's enemies on pain of forfeiture. [How long the redoubtable Terence obeyed the above conditions we cannot say, but we fear that the O'Toole did not keep faith very long with the "Sassenach," and if he cleared the way for himself and his kern through the woods and mountains, it is as much, we think, as he performed. Clearing a way through the woods and passes of Wicklow in the sixteenth century was a rather herculean task. We would like to know what age was Terence O'Toole when he got the above grant, for we read that like patents were granted to "Arthur (junior) O'Thole, of the castle and town of Castlekevin and the Ferter, and for like rents and services." The absence of the dates from these "Fiants" prevents us from drawing one or two conclusions. There is a whole history, however, involved in the grant to the O'Toole, and as we read the lines, or between the lines, we see at one glance how our language, like our ancient manners and habits, have passed away. Some of the latter deserved to disappear, but the language of our country deserved a better fate. Alas, it was wrested from our people like the confiscated possessions that are so

often recorded in the "Fiants"; and the widespread ruin of our National Monuments tells a tale to-day more expressive than any written record of our country's fate. Our Monuments verily is our "History in Ruins."]

#### CIVIC LYRICS.—No. XCIV.

##### "HOME RULE."

"Who killed Cock Robin?"—*Nursery Rhyme.*

What is Home Rule?

Home Rule for the Mayor  
Means office and prayer  
For high man and low man,  
And holding he's no man  
Who is not a Roman—  
That is Home Rule.

What is Home Rule?

"Home Rule for the City,"  
And more is the pity,  
Said Jack French, ferocious,  
Who's nowise precocious,  
Means nuisance atrocious—  
That is Home Rule.

What is Home Rule?

Home Rule for the People  
Means the Church on the Steeple,  
The Cross in the gutter,  
Bewilderment utter,  
And newspaper splutter—  
That is Home Rule.

What is Home Rule?

Rome Rule for the prelates,  
And powder and pellets  
For every communion,  
With the greatest diunlion  
On Repeal of the Union—  
This is Home Rule!

CIVIC.

#### GLEBE-HOUSE AND PARSONAGE.

THE Glebe Loans Act, passed a few years since, has given great encouragement to the building of ecclesiastical residences throughout the country, its advantages being embraced by a large number. In our present issue we are enabled to give illustrations of two residences in a northern county, and which we consider are fair examples of a class of houses suitable for a country clergyman, and erected at a moderate cost. Mr. William M'Elwee, of Londonderry, has been architect for both these houses, and we have been favoured with the following particulars from him:—

##### GLEBE-HOUSE, BURNFOOT.

The drawing shows south-west view of this house, which has been built as the parochial residence for the incumbent of the parishes of Burt and Inch, diocese of Derry, and is pleasantly situated near the village of Burnfoot, about five miles from the city of Derry. The arrangement and accommodation on ground floor is shown by the plan; and on chamber floor there are four bed-rooms, linen closet, and w.-c., and two servants' rooms, one of these having stair from back passage, and intended for boy or man servant. The office houses have hayloft over cowhouse and stable.

The house has been built in rubble masonry of the stones quarried at site, and walls are finished on outside with lime roughcast; the strings, mouldings, and window dressings, chimneys, and bays, being in Portland cement plaster. The roofs are covered with Bangor slates, and bays with sheet lead, having cut stone cornices, &c. Internally, the outside walls are battened, and the joiner-work has been finished in carefully-selected wood, stained and varnished.

The works have been carried out, under contract, by Mr. Alexander M'Elwee, builder;

\* No politics intended, Mr. Editor. Home Rule is a very expressive compound, and like charity, you know—in the city at least—it covers a multitude of—Dirt.—*Author's Note.*

Messrs. M'Laughlin & M'Cullagh, plumbers; and Mr. Henry M'Indoe, painter—all of Londonderry.

A grant has been made by the Commissioners of Public Works under the Glebe Loans Act, and the total cost, exclusive of architect's commission, has been about £940; this sum does not include the conservatory shown in view, which has not yet been erected.

##### THE PARSONAGE, ARDARA.

This house is being erected close to the town of Ardara, Co. Donegal, and is intended for the incumbent of the parish. The perspective shows north-east view, and the arrangement of house is shown by ground plan. On the chamber floor there are four bed-rooms, linen-closet, w.-c., and servants' bed-room.

The walls are built of rubble masonry, from the ordinary stone of the locality, and will be finished with lime or Portland cement roughcast. The free-stone for sills, landings, &c., is also being obtained from a quarry in the neighbourhood. Bangor slates are to be used for roofing.

The works are now being carried out by day's work, and on completion I hope to give you particulars as to cost.

#### ON THE APPOINTMENT OF DIOCESAN ARCHITECTS TO THE CATHOLIC CHURCH IN IRELAND.

ANTICIPATING that the question of "Ecclesiastical Architecture" would form a portion of the discussions at the recent national synod of the Roman Catholic archbishops and bishops, Mr. M. A. Hennessy, architect, A.R.I.A.I., A. Inst. C.E.I., addressed "A Plea in favour of the Appointment of Diocesan Architects to the Catholic Church in Ireland." His plea is inscribed to the Cardinal Archbishop, the archbishops and bishops, and the representatives of the clergy in the national synod assembled at Maynooth.

Mr. Hennessy's propositions call for no particular criticism at the present juncture, nor can we see that any objection need be urged against their adoption. The appointment of diocesan architects to the Catholic Church in this country may be quite as useful and as necessary as the appointment of them to the Irish Church, or what we may in common parlance call the disestablished church. Diocesan architects have their duties and their rights, but whether the evils that are to be guarded against will be obviated by their appointment is another matter. Diocesan architects, at present, do not lead charmed lives, nor are their appointments very remunerative. Instances have occurred and may occur where this class of architects will feel satisfied that the works of restorations, additions, and new buildings will prove highly satisfactory from their own point of view when entirely left to their care, though the subscribers and congregation outside may not share in the satisfaction.

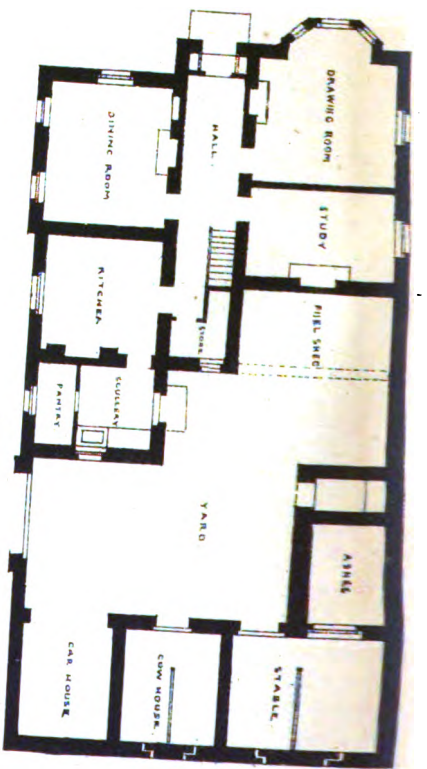
Open competition may have its evils, and we doubt whether they will be minimised by the general appointment of diocesan architects; nor is it clear that the right man will be always found in the right place. With these few words for the present, we will give, to the exclusion of his prefatory remarks, Mr. Hennessy's views on the subject:—

Of the many professional studies, to which taste and application are essential, there is, I submit, none that involves to so great an extent a thorough and practical knowledge of the arts and sciences, as does Ecclesiastical Architecture. Close and arduous investigation of these two departments, and a true acquaintance with the rise and progress of Christian art, from its origin to our time, are regarded as the basis of all success in determining the various and true qualities of Architectural Design.

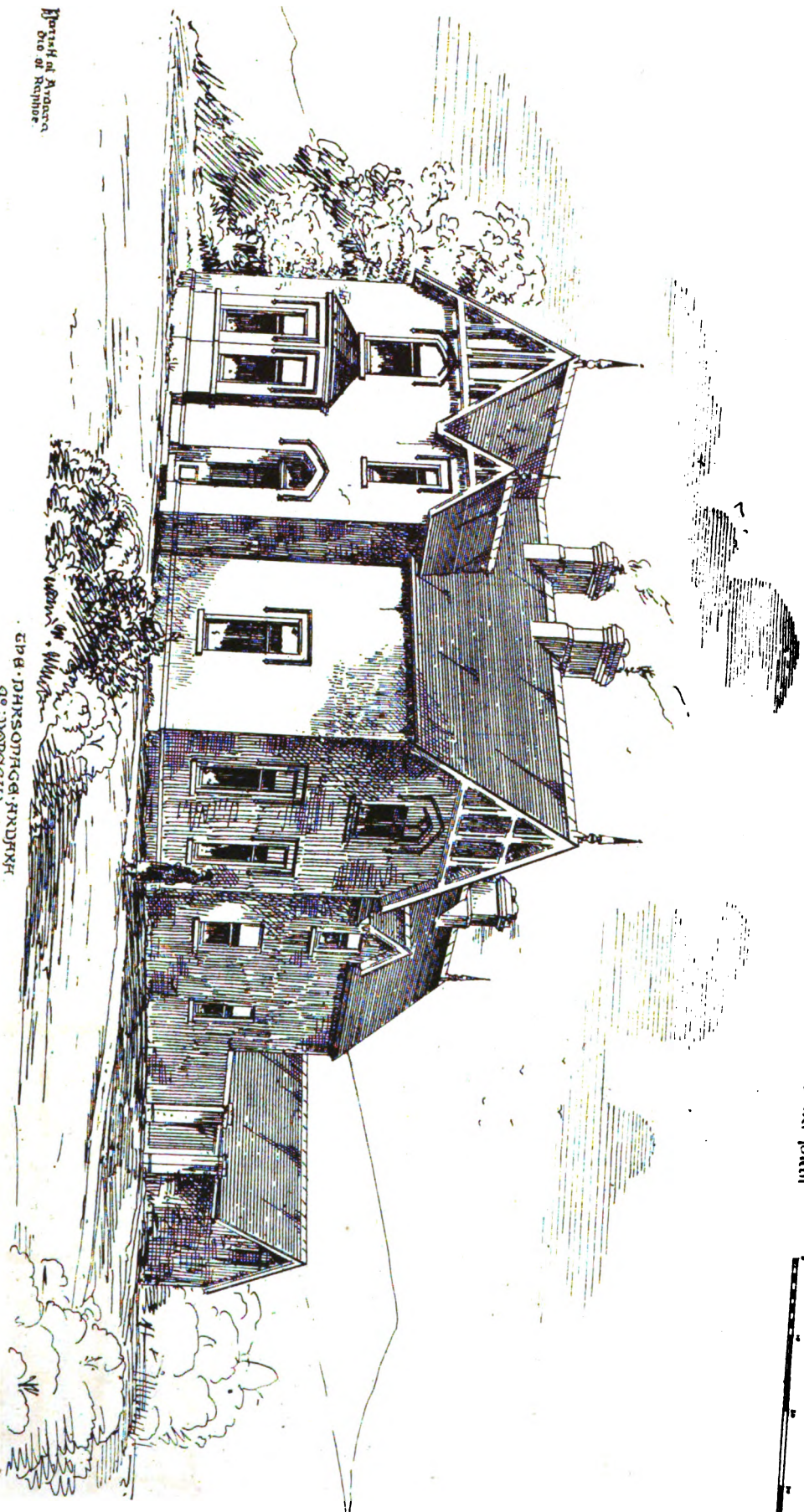
It is, I feel, needless here to refer to the necessity of acquaintance with the many and elegant forms







Ground plan

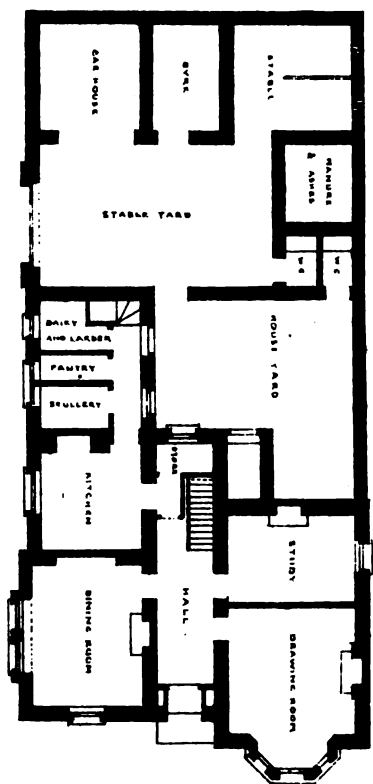


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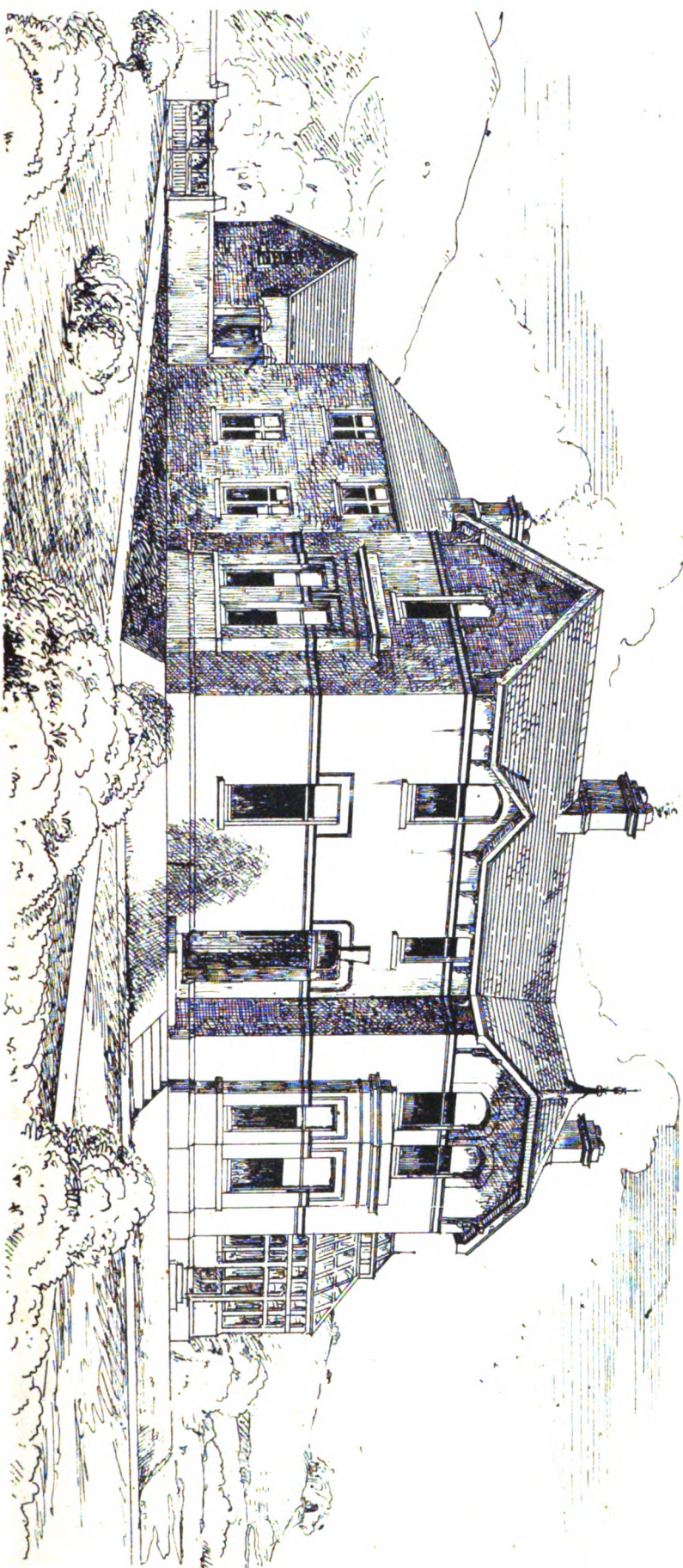
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Willm. O'Eller, Architect.  
London, 1875.





Ground Plan

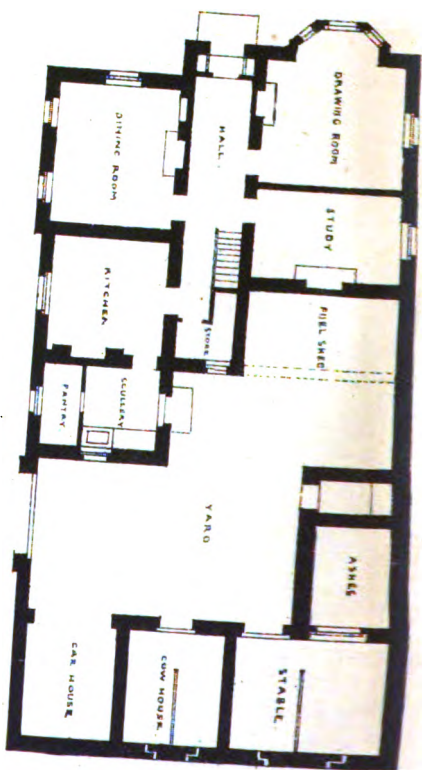


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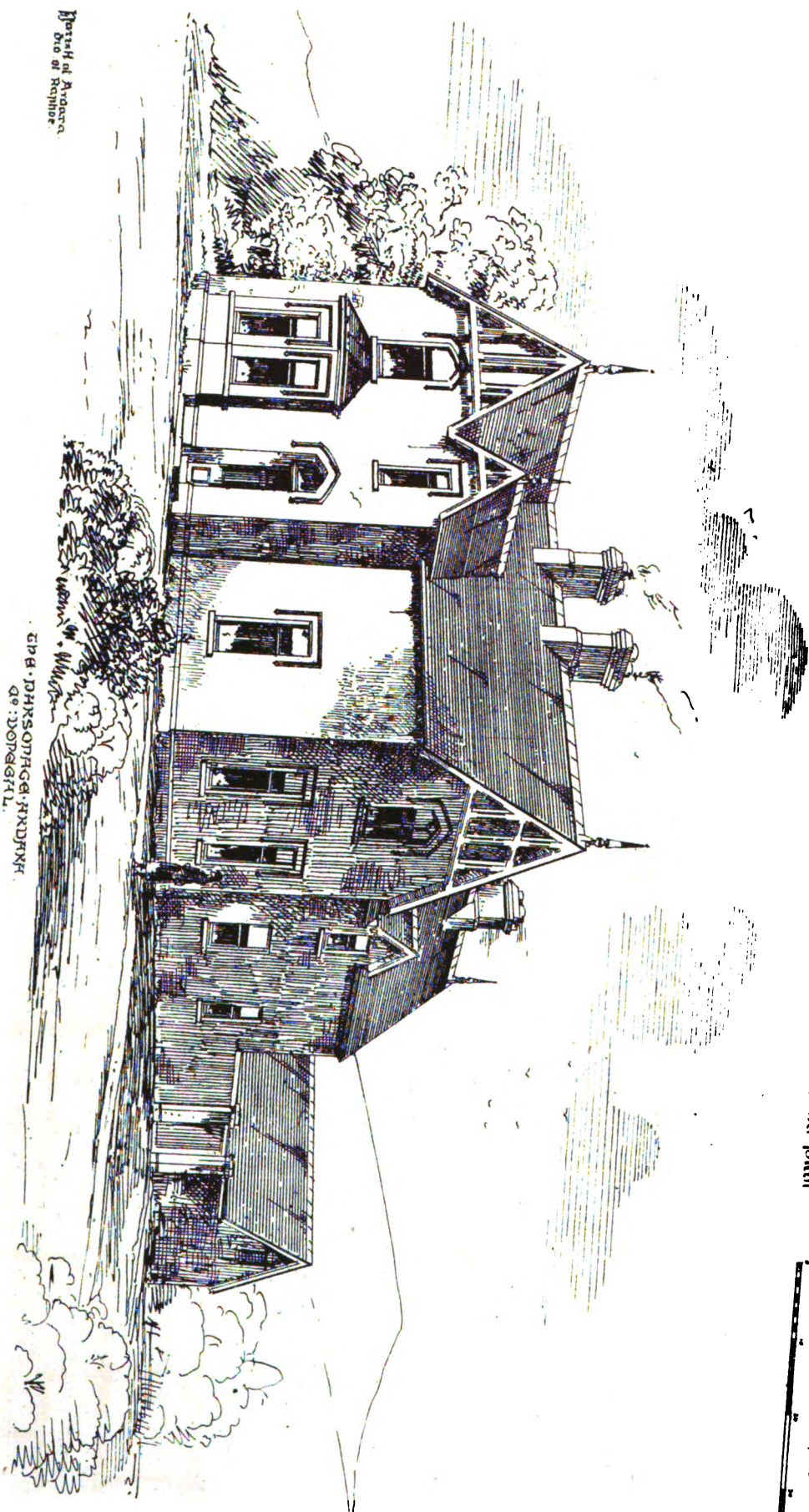
CLAREMONT HOUSE  
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Ground plan

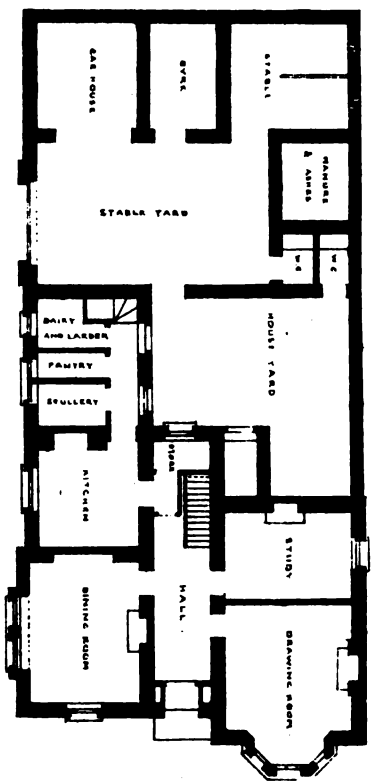


Pencil of A. Adams  
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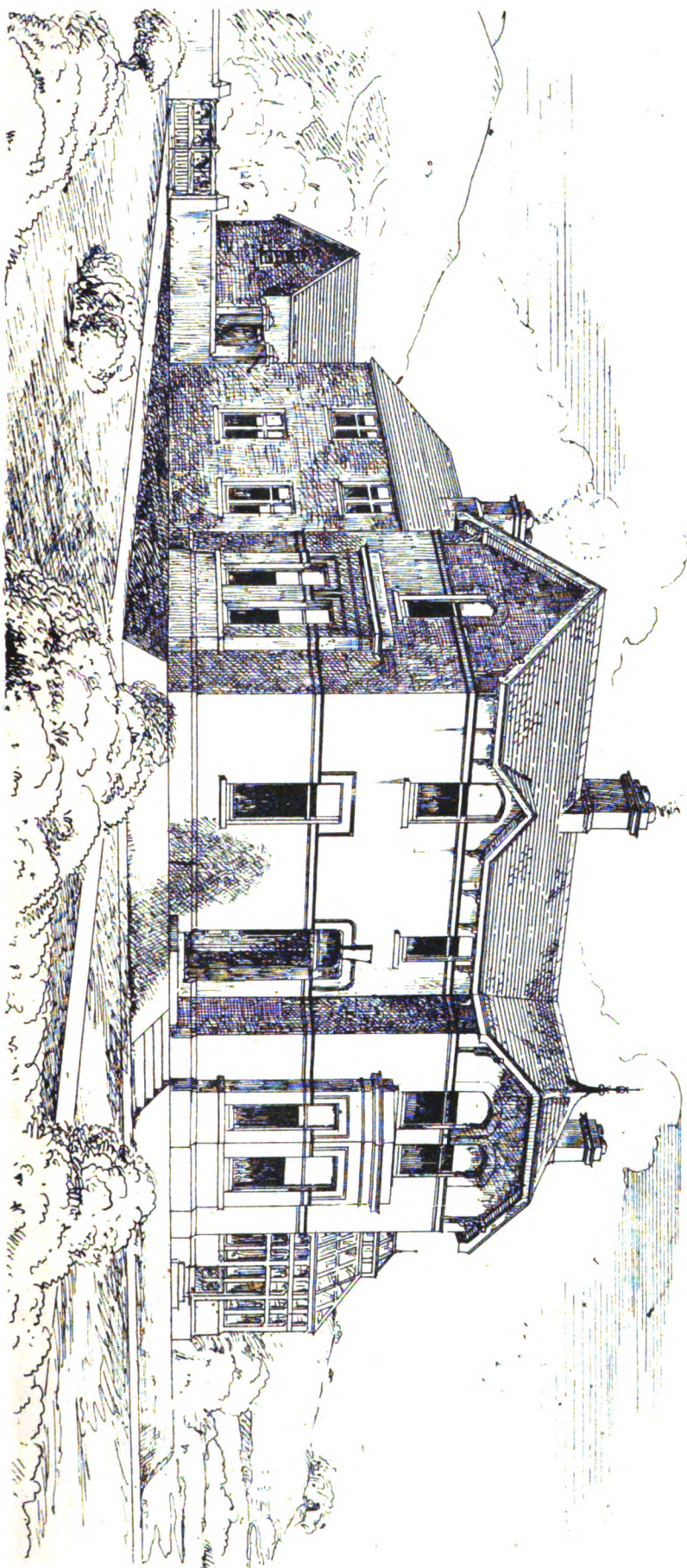
Wm. D. Parsons & Co. Ltd.  
of London

Wm. D. Parsons & Co. Ltd.  
London 1875





Ground Plan



Mansard of Port and Port  
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CLARK & POYSEY & CO  
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Will. & Oliver Architects  
London 1875

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of erection sanctioned by the Church: her rubrics attest her fostering care for the higher refinements of which the architecture of each successive age or period is frequently taken as an unfailing index. Hence we can understand the responsibility assumed by him who professes Ecclesiastical Architecture, and the importance of securing the services of a thoroughly professional man, to assist, in purely architectural and building matters, of course, the bishops and clergy who may be engaged in raising ecclesiastical edifices. Such an official I have taken the liberty of calling a Diocesan Architect. His duties may be summarised in the following manner:

—1. When, in accordance with the decrees, on this subject, of the last Synod, applications for permission to build would be made, the architect should be required to examine, and report the result of his judgment on designs, specifications, plans, &c., to the bishop. 2. If error in design or construction should be discovered, it would devolve upon him to correct the same, and so eliminate from the plans and specifications everything objectionable, either in point of utility or ornament. By such means, incongruities in style would be avoided, and the best architectural effects attained. It would be impossible to detail in this short sketch the inconvenience, danger, and expense which bad construction necessarily entails. In many instances we find, among other things, walls of churches thrown quite off the perpendicular, owing to roofs improperly constructed, or to defective foundations, or both, sometimes to other causes more or less remote, and not sufficiently anticipated when designs are being prepared. 3. To guard against the liability to litigation which seems to attend building contracts more persistently than any other species of agreement, and to preclude, as far as possible, the occurrence of what is technically known as "extra works," would be among the most important of the architect's duties. Evidently he would prevent anxiety, vexation, and the ruinous expenses attendant upon law, and no stronger argument could be given in favour of the proposed appointments than its very economy. In illustration of this I may call attention to one of the many cases that came under my notice:—Towards the completion of a contract of some five thousand pounds, for the building of a church, it was discovered that the roof had, owing to defective construction, sagged, and thrust out one of the side walls. The works were suspended, and could not be resumed until eighteen months had elapsed; in the interim a heavy lawsuit took place, the costs of which, and the expenses of re-building and making good the damages caused by these defects, amounted to no less a sum than one thousand pounds, all of which the clergymen for whom the church was being erected had to pay. Another case:—Within the past few months I have been called on to deal with an injury caused by a similar defect to a parish church which was built some eight years ago at a cost of twelve hundred pounds; it is now not only unsightly but in a dangerous state, and I have estimated the cost of works necessary to re-construct and render secure, at a sum of three hundred pounds. 4. The making of surveys and reports on buildings and works, when such things are recommended by the bishop, would form part of the architect's occupation. The bishop would then have always at hand trustworthy means of obtaining accurate information and advice on such matters as claimed his attention in the department of Ecclesiastical Architecture. 5. Also a large number of ecclesiastical buildings in each diocese—churches, convents, schools, &c.—require from time to time repairs, alterations, and enlargements. The execution of these works would naturally come under the architect's inspection; and from the trained and practical ability thus brought to bear upon diocesan works, far different results might be expected, architecturally and economically, than these obtained from the undirected efforts of local tradesmen to whom now generally this department is entrusted.

Such are a few of the duties and corresponding advantages of appointing an architect, and in addition to them we should have in each diocese an accomplished ecclesiologist, and a man in every way competent, through his intercourse with builders and tradespeople, to direct and advise every parish on practical matters. In fact, in every diocese there would be found a practical æsthetic teacher. Many other things might be mentioned, but it is hoped that sufficient has been stated to shew the importance of the subject, and to justify the writer in calling attention to it.

It was not my intention to treat of the subject of fees, but I feel, on consideration, this hurried paper would be rendered still more imperfect did I fail to do so. The simplest means I can suggest is, that each case investigated should bear its own fees, and that the remuneration should be regulated by the ordinary professional tariff.

## OUR "SPIRITED" CORPORATION.

OUR very useful fellow-citizen, Mr. John M'Evoy, has drawn attention to a fact not the first time noticed, but nevertheless worthy of being pondered over. To put the matter beyond doubt, Mr. M'Evoy has classified the trades and occupations of the members of our Town Council, giving their callings as returned in Thom's Directory of this year:—

Distillers and refiners .. .. .	2
Retail spirit dealers .. .. .	17
Pawnbrokers and "financial agent" ..	4
Soda bottlers and bottle works proprietors ..	2
Gasfitters, ironmongers, china merchants ..	5
Seed merchants, patent manure agents ..	8
Drapers .. .. .	3
Stationers .. .. .	2
Cattle and poultry salesmen .. .. .	2
Auctioneers and house furnishers .. ..	2
Coachmakers .. .. .	2
M.D.s .. .. .	3
Barriers .. .. .	2
Sacking-store proprietor .. .. .	1
Soap boiler and tallow chandler .. ..	1
Leather merchant .. .. .	1
Cutler .. .. .	1
Railway forwarding agent .. .. .	1
Architect .. .. .	1
Merchant tailor .. .. .	1
Druggist .. .. .	1
Retired traders .. .. .	3

60

A friend of the vintners contends that the spiritual members do not compose a sixth of the Corporate body, but from the above list it will be seen they are nearly a third. Three of the seventeen retail spirit dealers are engaged in other employments not usually associated with the sale of spirits. The pawnbrokers, like their professional brethren in London and elsewhere, are "financial agents," who can lend as well as borrow, and make advances on property and deeds as well as clothes.

We have no objection to publicans or pawnbrokers sitting as representatives in our Town Council, but we have a decided objection to see any public body swamped by a number of any particular calling, and unquestionably it is not a sign of wholesome public opinion to see a third of the members of a corporation composed of the publican profession. Need we wonder at the scenes that are enacted weekly in our municipal body, and the way the franchise is exercised. The elections in Dublin are controlled by the lowest class, and an influence is exercised that we need not more pointedly allude to. We are not in favour of disfranchising poor and honest men, but we are in favour of having a more equitable system whereby a check could be put to the vile practices that at present find favour in the voting in of useless and incompetent members to our municipal body. We have often preached in these pages justice and toleration irrespective of sect and party, and that the Corporation is no place for the discussion of political or religious questions. A clique in the Civic body for years have endeavoured to throw dust in the eyes of the citizens, or to oppose any effort at reform by pretending that there was no need for such, and that those who were in favour of it were their political foes, and foes to their religion. This game has been long worked in the Corporation, and is seen through. The fact is, that a large number of Roman Catholic citizens, as well as Protestant and Dissenting, are disgusted with the conduct of their representatives in the Corporation, and are earnestly calling out for and desiring reform. The conduct of one of the pawnbroking members, the other day, drew a remark from Mr. Dennehy (a representative who can be credited with the possession of common sense), that the conduct of the member alluded to and his allies demonstrated the truth of the oft-repeated assertion "that the time has come for a new reform of the reformed Corporation." Verily the time has arrived long since, and the reform cannot be much longer delayed. At two recent meetings of the Corporation, the scenes were equal to any to be witnessed in a bear garden, and the pawnbroking member, whose antics were noticed in last issue, verified to the letter the cha-

racteristics we credited him with. It is certainly time for the citizens of Dublin (to use the pawnbroker's own words) "to put their foot on all that sort of thing."

Our Corporation has become a chronic nuisance, and though full of *Spiritualists*, its composition is of the earth earthy, and no reform is possible until the stable is cleaned out, and this necessary work could be done if the ratepayers would only unite and act honestly, irrespective of sect or party. No politics, no religious discussions, but social and sanitary improvement and the city welfare: this alone should be the business of our Corporation.

## DUBLIN MAIN DRAINAGE.

### THE CORPORATION AND THE GOVERNMENT.

At a meeting of the Town Council held on the 25th of May last there was read a letter from the Under-Secretary, Mr. Burke, in which the Lord Lieutenant informed the Corporation it was impossible to comply with their request to introduce into Parliament as a Government measure a bill to enable the Corporation to increase their borrowing powers to £500,000, and to extend the time for the completion of their Main Drainage works. In addition to the objection founded on the standing orders of Parliament to such a proceeding, the Under-Secretary referred to what appeared in a memorial (a copy of which he enclosed), and which he described as having been "numerously and influentially signed by ratepayers and owners of property in the city of Dublin," which has been recently forwarded to his Grace, and in which they object to the Corporation "depriving the ratepayers, by a public Act of Parliament, of their statutory right to remonstrate against or oppose either the plan now proposed or any increase of the borrowing powers of the Corporation." The letter concluded with the proposition that if the Corporation would undertake to promote a bill in the next session of Parliament to obtain the increased borrowing powers they sought, and an extension of time for the completion of their Main Drainage works, the Government would at once introduce a bill to enable the Public Works Loan Commissioners to lend the £500,000 sought for.

The letter of the Under-Secretary having been referred to the Main Drainage Committee, that body quickly reported in favour of giving the required undertaking, and this report having been considered by the Town Council at a meeting on the 7th of June, it was resolved—

"That the recommendation of the Dublin Main Drainage Committee be hereby adopted, and that the bill referred to therein be promoted in the next session of Parliament by the Corporation; and that the law agent, under the direction of the Main Drainage Committee, be hereby charged to carry out this order, and that the Corporation give the necessary assurance and undertaking referred to by his Grace to promote said bill."

In consequence, the Government introduced and had passed into law a bill for the purpose indicated, entitled "The Sanitary Acts Amendment (Dublin) Act." On its third reading in the House of Lords, the Duke of Richmond, on behalf of the Government, repeated the statement made in the letter of the Under-Secretary—"That its object was to enable the Public Works Loan Commissioners to lend the Corporation £500,000, but only in the event of that body obtaining next session from Parliament a Local and Personal Act, and thus being in a position to avail themselves of its provisions."

It is scarcely possible that the law agent of the Corporation has not advised that body that, at latest, early in the month of September the first meeting prescribed by the Towns Improvement Act should have been held, in order that before the time in November when the Parliamentary notices must appear, the decision of the ratepayers would be given.



## ROADS AND PAVEMENTS—

THEIR CONSTRUCTION, WEAR AND TEAR,  
SANITARY ASPECTS, ETC.

(Continued from page 262.)

SANITARY OBJECTIONS TO WOOD AS A MATERIAL  
FOR PAVEMENTS.

THE General Board of Health set aside wood as an ineligible material, for this amongst other reasons that street surfaces ought to be impermeable, and for roads of light traffic and cheap construction they looked to modifications of macadam, with bituminous binders of mineral tar. Since then wood has been re-produced for the purpose, and strongly pressed in improved forms for trial. It certainly offers the advantage of a great gain in noiselessness over granite, more especially from the horses' feet; though with some disadvantage from a dead rumble and vibration; and further, it has the advantage of being more available than smooth pavements for inclines. But hygienists object to its use on grounds which, in the absence of sanitary science, are overlooked, but which it is important to particularise, as showing the dangerous state of ignorance and incompetency of the authorities, by whom they are not entertained or are disregarded.

It is found that "hospital gangrene" frequently follows the washing of plain wood floors with water; and "dry rubbing" is prescribed to avoid the evil. Careful waxing of the wood, to diminish its absorbency, is also prescribed as a preventive.

On shipboard new timber, or moist timber, between decks is found to be very detrimental to the health of sailors, and "dry rubbing" is prescribed for their protection. When the timber on shipboard is saturated with bilge-water, or putrescent matter, it is found to be the source of fatal epidemics.\*

Impregnation of the wood with mineral matters, to preserve it from decay, may diminish these evils, but nothing as yet tried prevents the fibres being separated, and the absorption of dung and putrescent matter by the wood being continued. The condition of absorbing mere moisture is of itself bad, but when the surface absorbs and retains putrescent matter, such as horse-dung and urine, it is highly noxious. The blocks of pavement with this material are separated by concussion, and are thus rendered permeable to the surface moisture. Mr. Sharp, who examined some blocks taken up for repavement, states that he found them "perfectly stained and saturated with wet and urine at the lower portions, while the upper portions were dry." Mr. Elliott, a member of the society, and for many years a deputy of the Common Council of the City of London, has carefully observed the trials of new modes of paving there, objects to the wood, that it is continuously wet or damp. "Wood is porous; it is composed of bundles of fibres. It absorbs and retains wet, foul wet especially. The fibres of the wood are placed vertically, the upper ends whereof fray out, are abraded, and become like painters' brush stumps, and are almost as permanently dirty, or they break like the handle of a chisel which has been struck with an iron hammer or wooden mallet. This fact is beyond all question. Wood is wet or damp, more or less, except during continued very dry weather. Its structure is admirably adapted to receive and hold, and then give off in evaporation very foul matters, which taint the atmosphere and so far injure health."

Sir Joseph Whitworth, in his evidence before the Health of Towns Commissioners, stated that "the wood most generally used for paving purposes, being very porous and the fibre vertical, or nearly so, the manure, when pulverised by the action of the wheels, becomes so imbedded in the fibre, and adheres with such tenacity, that it is impossible to remove it except when either very wet or dry. The power required for cleansing it is also much greater than for stone, and we consequently find that a horse

cannot cleanse an equal number of yards per day on wood pavement. A much greater quantity of rain is required to cleanse it well, and it is much longer in drying, hence the time afforded for efficient cleansing is of much shorter duration." But the best surface cleansing of this material is visibly only of partial extent. The advantage of the wood in giving a better foothold and more safety for the horses than very smooth pavement on steep inclines, is obtained by channelling the wood blocks, and creating interstices for the deposit of offensive dung and dirt which the broom does not remove, and which could only be cleansed with great difficulty. These interstices, usually thus filled, constitute about one-sixth of the whole surface. Sanitary authorities regard the existence of such visible conditions as denoting a low sense of civic decency and propriety, which is not offended by the sight of foul surfaces, and is not anxious for their removal, nor gratified by the sight of cleanliness, nor anxious for its exemplary maintenance. They have no doubt that wood pavement must supply an important contribution to the ill-health of towns. They are certain that if any well-paved, well-cleansed, and dry playground were taken up, and a wood pavement were substituted for it, that the effects experienced in hospitals and on shipboard from the simple damp of the wood, would be manifested amongst the children; but if that wood and that pavement were daubed with dung and mud, and put in the common condition of the wood pavement in the streets, they have no doubt that it would soon become, as it were, the floor of a fever nest. Foreign sanitary authorities agree with those here on the question. Thus Mons. Fonssagrives, the Professor of Hygiene in France, already quoted, gives the following account of it:—

"The wood pavement has been frequently tried. The Russians seem to have been the first to do so, and have used blocks of wood with six sides for the paving of several streets in St. Petersburg. The English have also tried this system, and we may see specimens in various streets in Paris, notably in the Rue Croix-des-Petits-Champs and Richelieu, which have been partially paved with blocks of wood, laid on a bed of sand and lime; and only last year a small portion of the Boulevard Saint Michel was paved in this manner. This pavement is certainly very even, and by reason of its elasticity it yields to the pressure of the horses' feet, and thus affords a foothold; but it has the double drawback that it wears off in fibres, and that it deadens the noise to a degree which is dangerous for the foot passengers. Moreover, the swelling of the fibres when wet dislocated the pavements, and the expansion of the wood by the action of heat, produces a pressure which displaces the foot-pavement."

"The hygienist cannot, moreover, look favourably upon a street covering consisting of a porous substance capable of absorbing organic matter, and by its own decomposition giving rise to noxious miasma, which, proceeding from so large a surface, cannot be regarded as insignificant. I am convinced that a city with a damp climate, paved entirely with wood, would become a city of marsh fevers. Happily, all the attempts have failed, and the method has been apparently finally condemned. Wood is therefore reserved for those rough pavements, which, as in Russia and in Wallachia, consist in covering marshy roads with hewn trunks of trees, over which the carriages pass; but this cannot be compared with a regular covering of all the streets with wood pavement."—"Hygiène et Assainissement des Villes," by J. B. Fonssagrives. Paris, 1874.

The account given of it by the Commissioners of Public Works in New York is unfavourable to it on economical grounds; as to the great expense of repairs, they state that "since decay has taken place in the wooden pavements many complaints have been made of the offensive and unhealthy effluvia emitted from it. This department has used its best endeavours, and all the means at its command, to remedy the evils; but it had only been able to do so to a limited extent."

The sanitary evidence on the subject will be found to be clear, consistent, and decidedly against it.

\* Fonssagrives' "Hygiène Navale," p. 200.

(To be continued.)

THE "RESTORATION" OF KILDARE  
CATHEDRAL.

WITHIN the last few weeks the question of the "restoration" of Kildare Cathedral has been canvassed, and the advisability of the intended reparation challenged. It may be remembered that in 1871 Mr. Street, the architect, was instructed to draw up a report upon the state of the ruins of this edifice, and a committee was formed, which we presume still exists, for the purpose of collecting funds and carrying out the "restoration" in the way advised by Mr. Street. Notwithstanding the architect's well-known ability, which no one denies, yet it may be well doubted whether there is sufficient merit, art, or architectural value or historical interest in the remains of the so-called Cathedral of Kildare, to warrant a restoration in the true sense of the term. The edifice can be rebuilt we know, and if the intended work is carried out, as indicated in Mr. Street's report, the Cathedral, to all intents and purposes, will be a new building, and not a "restoration."

At the date of our last issue, Mr. Richard Rolt Brash, who is both a practical architect and a native antiquary, well acquainted with the ancient architecture of Ireland, addressed a letter to a daily contemporary on the subject of the proposed "restoration." We think it will not be out of place to reproduce this letter in its entirety, as it may be a subject of future reference. Mr. Brash writes:—

Having been informed some time since that an idea was entertained of restoring the Cathedral of St. Bridgid, at Kildare, I was much surprised, and really discredited the statement as a newspaper *canard*. My recollection of two visits paid to the ruins of that ancient building having strongly impressed my mind that any attempted restoration would be the extreme of folly, and a most unjustifiable waste of money. My attention having again been called to the subject by recent articles in your columns, and having business in Dublin during the last week, I determined again to refresh my memory respecting the present state of those ruins, and accordingly I re-visited Kildare. Having arrived on the spot, found a couple of masons dressing two or three loads of stone, and, on inquiry, found it was for the restoration of the Cathedral.

Having carefully examined the existing remains, I will now describe the structure as it was originally, and as it now exists.

The Bishopric is supposed to have been founded by St. Conlaeth, with the assistance of St. Bridgid, when, it is to be presumed, the first church was erected, which, in accordance with the fashion of the times, must have been of very small dimensions: St. Conlaeth died A.D. 519 (Ware's *Antiq.*, v. i. p. 380). We have no mention of the sacred buildings at Kildare until the accession of Ralph of Bristol, of course an Englishman, who was consecrated in A.D. 1223, and who died 1232. Ware states "This prelate was at great expense in repairing and beautifying his cathedral" (*Ibid.*, p. 385). It can be scarcely doubted that this refers to the rebuilding of the present structure, which is in the first pointed style of an early type, the Lancet, which in the year 1223 had been well developed in England. Bishop Ralph doubtless found the old Romanesque building in a state of decay, or perhaps from its size, unsuitable for the dignity of the diocese; he, therefore, we presume, set to work to build the present cathedral in that style he had seen prevalent in his native land.

The above notice is all that I have been able to find recorded of this fabric. No evidence is afforded by the present remains of any subsequent additions or alterations, with the exception of the chancel, which is modern. The church then originally consisted of a nave, a chancel, and transepts, N. and S. It is also probable that there were one or two side chapels at the E. end, and a chapter house; but no traces of such exist. The nave was 78 ft. in length and 31 ft. 6 in. in breadth. Transept, 39 ft. 2 in. from N. to S., and 25 ft. 6 in. from E. to W. The nave was lighted by six lancet windows at each side; they were finished internally with chamfered arch moulds resting on dwarf pillars, having moulded caps; these shafts ran about one-third way down the jambs, fancifully terminating in a twist. Externally the nave shows two ranges of buttresses of bold projection, from which sprung arches that covered the intervening spaces, and supported the parapets; this arrangement is, I believe, seldom met with, and is really the only feature of any in-

terest in the entire building. There was a central tower resting on the arches of nave, chancel, and transept; those arches were of 22 ft. 4 in. span between the piers. The tower was heavy and unsymmetrical, and quite out of proportion to the rest of the fabric. The masonry of the entire, if we can judge from what remains, was of the rudest type of rubble work, the stones small, a superabundance of spawls used, and scarcely any attention paid to bond; in fact, I have not seen in any other ecclesiastical edifice in Ireland so wretched a specimen of the mason's craft; and I have very strong doubts of any native workman ever having laid a stone in this edifice. The Irish masons from the earliest ages were famous for their skill in building; the finest specimens of masonry I have seen are to be found in our round towers and primitive churches of the sixth and several succeeding centuries. This subject I have discussed at some length in my work—"The Ecclesiastical Architecture of Ireland to the close of the Twelfth Century."\* From what I have stated it is evident that the Cathedral of Kildare was a very rude edifice in point of workmanship, and very unpretentious in point of design and dimensions.

I shall now describe the ruins as they at present exist. To begin with: the west gable of nave has entirely disappeared; not a trace of the north transept remains; only two of the tower arches are to be seen; in addition, a portion only of the south side of the tower still "bides the storm," to show its original design and construction. The nave walls are much injured. The buttresses are eaten away to half their original projection, their bases being entirely gone; the arches already alluded to have fallen, with the exception of one at the south side, and there is not a single original doorway left. The building at present used as the parish church occupies the position of the ancient chancel, the windows of which are of a debased type, probably of the beginning of the eighteenth century, and there is no feature of the original chancel existing. In addition, all the remaining walls are out of plumb.

Now I would ask, What is there here to restore? Two dilapidated nave walls, one transept, and a portion of one side of a tower; remnants of crumbling masonry that we know to a certainty has been unroofed 140 years, and most likely a century more, as Blamire's drawing, published in Ware's Antiquities in 1738, shows all the existing dilapidations, save the west gable, which in his day was standing. I have heard Mr. Street's name mentioned in connexion with this so-called restoration, but I can scarcely imagine that an architect of his reputation would for one moment advise so preposterous an undertaking. No architect of any practical experience could conscientiously recommend such a course. Having myself some forty years' experience in building and architecture, I unhesitatingly assert that no true restoration of Kildare Cathedral is possible; there may be a sham restoration, under the plea of which a new building may be constructed in the same style as the ruins present to us. Let us remember what is to be done, if it were practicable to do it with stability; we have the reconstruction of the west gable, of the buttresses, arches, and parapets of nave walls; of the entire of the north transept, of the two tower arches, of the entire of the tower walls, for it would be utterly impracticable to connect the new walls with the fragment of the south one which still remains; of general repairs to south transept; of the building of an entire chancel, with a suitable vestry; in addition, add the roofing, slating, glazing, flooring, and inside finishings and fittings up, and I think we may say that we have a reconstruction and not a restoration, in the usual sense of the term.

To show the folly of the present proceeding, I would ask one question: Is it the intention of the restorers to construct the deficient parts in the same manner as the existing remains, i.e., will the wretched rubble masonry of the old, with its scanty, meagre dressings, be imitated in the new? If not, it will be no restoration; if otherwise, it will be a standing jest for years to come. I am no foe to the restoration of our ancient buildings—far from it. Few men have taken a greater interest in their study and preservation than I have, as can be attested by my portfolio of measured drawings, collected from almost every ancient building in Ireland during the last thirty years; but I do object to the pseudo restorations that we have seen.

The true principles of restoration have been frequently laid down as follows: that the building should possess merits of design or construction; that the principal portion of the fabric should be in existence and in a fairly sound condition; that no new features be introduced, the original plan being strictly followed; that the class of masonry visible in the old parts be strictly followed in the new.

If the above obviously rational principles be observed in reference to the Cathedral of Kildare, its decaying relics will be allowed to moulder away in peace.

The publication of Mr. Brash's letter elicited an angry rejoinder from Mr. Thomas Cooke Trench, one of the members of the Restoration Committee and its honorary secretary. Mr. Trench does not in his letter set himself the task of answering Mr. Brash's letter in the way it should be answered. He charges him with being guilty of many inaccuracies, but he does not point them out, but contents himself with quoting from Mr. Street's report of 1871 the following extract:

The south transept and the nave have lost their roofs, but almost all the other architectural features still remain, either intact or in such a state as to make their restoration a matter of no difficulty. The southern elevation of the south transept is one of great simplicity, and of good character and proportion. Its window is a well-designed triplet, simple externally, but with shafts and mouldings internally. The side walls of the nave present a very remarkable design. The windows are simple lancets, separated from each other by buttresses. Between these buttresses bold arches are formed, nearly on a face with the front of the buttresses, and with a narrow space between them and the face of the wall. The effect of this arrangement is to throw a very bold shadow over the window, and to produce a most picturesque effect.

And again:—

There are various other fragments of great architectural and antiquarian interest in this building.

And once more in page 7 he says:—

I should then propose to take in hand the exact and careful restoration of the whole of the ancient portion of the Cathedral. This would involve repairs of stonework, re-erection of the roofs, and flooring of the nave and transepts, and the removal of the modern tower, and the restoration of the old one. Ample authority exists for the whole of this work, so that it might really be a work of restoration, in the best sense of the word.

We will give some extracts from Mr. Street's report, which we think bear out the opinions expressed by Mr. Brash:—

The choir is the only part still roofed and used for service. It is fitted up for use as a cathedral choir, with seats for the parishioners in the centre. Its architectural character is of the poorest description; but it is probable, I think, that the side walls (especially the northern one) are old, though modernized in all their architectural features. The roof is not in good condition, but is concealed from view by an internal flat and plastered ceiling. The rest of the church is in ruins. . . . The west end of the nave is destroyed, and its place occupied by a modern wall. . . . The north transept has been entirely destroyed, some part of it within a few years, when a new tower was built in the angle between it and the choir. This tower is a poor erection, and most awkwardly placed, just behind the ruins of the noble central tower. The central tower is a mere wreck; one side only—the south—is fairly perfect; the whole of the rest of it has been destroyed. It is a work of fine design and proportion, not very lofty, but, in its complete state, so large as to give a good deal of the dignity of a cathedral to what might otherwise have looked somewhat too much like a parish church.

We think we have quoted Mr. Street fairly, and, viewed in the light of his report, the Kildare Cathedral does, indeed, seem little more than a complete wreck. Mr. Brash points out in connection with the nave of the church, the only feature of architectural interest, a point also dwelt upon in Mr. Street's report, so the architectural profession and the general public must judge for themselves from the description given above, whether the edifice can really be "restored" in the true sense of the term or not, and whether the £5,000 calculated as the cost of the proposed "restoration" will be wisely expended. Knowing something about church restorations, we know that if the proposed work be carried out, the sum is likely to far exceed that estimated by Mr. Street. We certainly are not foes to preservation of our National Monuments, but rather uncompromising advocates in its favour; and we dare to say, and we believe all true archaeologists and antiquaries will agree with us, that

there are scores of ancient ecclesiastical remains in this country more worthy of restoration than the edifice in question, redolent of art and archaeological grandeur which the Kildare edifice cannot boast of.

We must not omit to notice here that Mr. Thomas Drew, R.H.A., an Irish architect, known to the readers of this journal, has made public his views on the question under notice. It will be only fair that they should obtain the same publicity as Mr. Brash's; but we cannot help feeling that Mr. Drew has imported matter into his letter which might be well left alone. The question was not what Mr. Street has conscientiously accomplished at Christ Church Cathedral, or whether a feeling exists among some that because he is an English architect an *animus* is felt towards him. For our part we can rejoice at an able architect being employed in the preservation of our national buildings, and we care not whether he be a native of New Zealand or elsewhere, so as the work entrusted to him is performed honestly and well. We are not clannish, and our motto has always been the "right man in the right place." To be sure no Irish architect, antiquary, or lover of our National Monuments would be otherwise than glad to see a "restoration" entrusted to a skilful Irish architect well versed in the architecture of our country; but as we said already the question has not been publicly raised in the form "English Architects *versus* Irish Architects." Mr. Drew writes:—

It has been suggested to me that Mr. Brash's whimsical objection to the restoration of Kildare Cathedral should not be allowed to pass unchallenged by others as much interested in the ancient churches of Ireland as himself. His opinion may or may not be representative of Cork opinion, but, I state, with some confidence, his views are generally not concurred in by any architects or archaeologists I have met in Dublin. That anyone should object to the restoration and preservation of remains (Mr. Brash to the contrary) of such interest for many, and so menaced by destruction, is incomprehensible.

Perhaps the objection may be found to have its spring in an aspect of the question which is frequently suggested by very small-minded outsiders for acceptance by Irish architects (but to their credit repudiated by them), that it should be represented as a slight that Mr. Street, a "foreign" architect, should be "imported" when a restoration of an Irish church is to be taken in hand.

I have some means of estimating the feeling of Dublin architects, at least on this point, with reference to Christ Church Cathedral restoration. There Mr. Street's work has undergone the closest scrutiny throughout, and most impartial criticism. I believe there is as a result but one feeling prevalent among candid professional men, and that is of sincere admiration for Mr. Street's mastery and conservative work; satisfaction that a work of such interest is in such able hands, and a fair admission of the incompetence of many leading Irish architects, to whom the work might have fallen, to compete with Mr. Street in experience of church restoration, erudition, and the weight of a name which can carry a complete and well-matured scheme, unmeddled with and unhampered, in through the ordeal of amateur architects and "improvers." It is unnecessary for me to do more than refer to an example of "restoration," so distressing to good archaeologists as to have made them especially thankful for the crowning mercy of the employment of Mr. Street in this case.

I feel sure the same feeling is generally abroad with reference to Kildare Cathedral. It has been a subject of some surprise that Mr. Street could be induced to undertake a work for him so comparatively petty and remote, and but general satisfaction will, I think, be felt, freed from professional jealousy, that if this work is to be done we can feel reliance that it will be done right. In conclusion, I may say that I think Mr. Trench may feel assured that there are many in the world out of Cork who consider the remnant of the ancient Cathedral of St Bridgid very well worthy of restoration and preservation, and sympathise with the committee in their work.

No laudation of Mr. Street is any object of this letter. If it happened to be a work of that gentleman's original design—say, for instance, a Synod House for Kildare—were offered for discussion, there might not be such unanimity of architects' opinions.

We are of opinion that the question of the

\* Dublin: W. B. Kelly, Grafton-street. London: Simpkin and Co.

"restoration" of Kildare Cathedral will not rest at its present point, and that the controversy will be carried further. When Mr. Thomas N. Deane was lately appointed under the Act for the preservation of our National Monuments, the question was raised by our own countrymen whether his appointment was a wise selection—not that he was not a skilful architect, but whether he was well versed in the ancient architecture of Ireland. It was thought that one who was to be a custodian in a manner of our National Monuments, and a director of works of reparation when actually needed, should have no slight acquaintance with all the varying styles and features that distinguish architectural remains in Ireland, from our first primitive churches down to two or three centuries since. There are side issues as well as front issues to this question of "restoration" which will have to be argued out calmly and with no partizan zeal.

Some recent utterances of Mr. Street will not be out of place at this moment. What constitutes a good "church restorer?" Mr. Street answers the question thus: "To be a good church restorer, a man must be a good archaeologist, and be well acquainted with the architectural antiquities and history of his country. In church restoration he considered it was indispensable that the architect should make himself acquainted with the architecture of all parts of the country." Is Mr. Street a good Irish archaeologist, and has he made the architecture of Ireland his peculiar study, and is he well versed in the antiquities of Ireland? We do not attempt to answer the question, and must leave it in the hands of Irish architects, archaeologists, and antiquaries; but apart from this, and as a parting word, for the present we have grave doubts indeed on the head of the proposed "restoration" of Kildare Cathedral, but none on the advisability of a new spick-and-span building.

#### DANGEROUS STRUCTURES.

A VISITOR to Dublin, if he was an observant mortal, would, on having taken a walk through the city, come to the conclusion that we had no Corporation, no police magistrates, and that the policemen were only appointed for moving-on and taking care of themselves. Public obstructions in our streets and on our footways are numerous, and dangerous structures are nowise few. In Sackville-street, at the corner of Gregg's-lane, a dangerous structure had existed for some years back, and public attention had often been called to its tottering state. This house, having got tired of threatening the public, dropped down on last Saturday morning with a "tremendous crash"; luckily, however, there was no one killed. Had there been any lives lost the Corporation were as clearly amenable for the consequences as any railway company when lives are sacrificed through a collision that could have been prevented with care. It is clearly the duty of the Corporation to take down any dangerous building if the owner will not move in the matter when noticed to do so. If the owner is either unable or unwilling, or if it is not clearly ascertained who the owner may be, it is still the duty of the local authority to move, so that accident, injury, and loss of life may be prevented. We have been informed that an officer of the Corporation viewed the house in Sackville-street a short time since, and pronounced it in nowise a more dangerous state than it had been for years previously. We can state that when we viewed the house last week there were unmistakable signs of its speedy falling. The Corporation staff, as usual, kept never minding. If any owner of property in the immediate vicinity has suffered injury through the falling down of this structure, he has a clear case to proceed against the Corporation for damage; and in all similar cases we would advise such a step. The Act is clear upon the case, and for the information of all concerned we quote it—27 & 28 Vic., cap. 305, s. 20:—

Whenever the surveyor or deputy surveyor authorised as aforesaid shall certify to the Lord Mayor that any structure (including in such expression any building, wall, or other structure or anything affixed to or projecting from any building, wall, or other structure) is in a dangerous state, the Lord Mayor may in such case order the surveyor or deputy surveyor to cause the same to be shored up or otherwise secured, and proper boards or fences to be put up and properly lighted for the protection of passengers; and shall cause notice in writing to be posted on the said premises and also to be given to the owner or occupier of any such structure, requiring him forthwith, or as soon as shall be expressed in such notice, to take down, secure, or repair the same, as the case may require; and if the owner or occupier to whom such notice is given fails to comply within seven days from service thereof with the requisition of such notice, the surveyor or his deputy may make complaint thereof before a justice or justices; and it shall be lawful for such justice or justices to order the owner, or on his default the occupier, of such structure to take down, repair, or otherwise secure to the satisfaction of such surveyor or deputy surveyor, or of such other surveyor as the Corporation may appoint for that purpose, such structure or such part thereof as appears to him to be in a dangerous state, within a time to be fixed by such justice or justices; and in case the same is not taken down, repaired, or otherwise secured within the time so limited, the Lord Mayor may with all convenient speed cause all or so much of such structure to be taken down or otherwise secured in such manner as may be requisite; and all expenses incurred by the Corporation in respect of taking down, shoring up, boarding up, watching, and lighting any such dangerous structure in pursuance of this act shall be paid by the owner, or on his default by the occupier of such structure, but without prejudice to the right to recover the same from any lessee or other person liable to the expense of repairs of such structure; and such expenses may be recovered by the Corporation by civil bill or action in any one of the superior courts in the same manner and with the same costs as an ordinary debt.

The above is clear enough, and we do hope that the Corporation will in future not be permitted to play fast and loose with the lives of our citizens, but be compelled to perform their duties.

#### THE FACTORY AND WORKSHOPS ACTS COMMISSION.

ON the 20th and 21st ult. the Right Hon. Sir James Ferguson (chairman) and the O'Conor Don, with Sir George Young, secretary—the Commissioners appointed to inquire into the operation of the Factory and Workshops Acts, with a view to their consolidation and amendment—sat at the Shelbourne Hotel, in this city, resuming their inquiry, which had been adjourned from Belfast. Some important evidence was taken from employers of labour and representatives of trades bodies, the public analyst, and the medical officer of health for the city. The sanitary condition of the houses of the workmen, as described by Dr. Mapother and Dr. Cameron, was a very sad picture, and we need not say how it reflects upon our Corporate authority. Not a little startling evidence was also given by Mr. Michael M'Mahon, secretary of the Tailors' Trade Society, of the foul workshops provided by some large tailoring establishments, and "the tricks of the trade." Mr. John Keegan, the secretary of the United Trades, also gave very useful evidence respecting the condition of women employed in millinery and dressmaking, and also of the condition of men and boys in some departments of the cabinet trade. Miss Isabella Todd was examined as to the condition of female millworkers in Belfast, and stated that more than half of them who had to support parents or married sisters who had been deserted by their husbands, regretted the loss of money which resulted from shortened hours; but the rest, who had only themselves to support, like the leisure which they gained in that way. A much smaller number of married women, she said, worked in the Belfast factories than in those in the north of England. She thought the Workshop Act should be more stringent. Miss A. B. Corlett stated that, in the outfitting shops in Dublin, girls

had to work until 9 or 10 o'clock at night all the year round. She thought over-work was more prevalent in the small places of business than the large. In Dublin a great number of shops, attended by women, were open on Sundays from 2 o'clock in the afternoon until ten or eleven at night.

If the evidence of Mr. Boyle, C.E., the Secretary of the Public Health Committee, be correct, it appears we have only 24,000 (?) houses in Dublin, and that out of these 9,300 are set in tenements. The Public Health Committee, he said, had the Artisans' Dwellings Act under consideration, but did not think they would put it in force in consequence of the difficulties in the way of doing so. Mr. Boyle said no youths under eighteen years of age worked at night in bake-houses, but during the day lads of fifteen and eighteen years of age were employed. No attempts to enforce regularity as to hours of labour in bake-houses had been made.

We may remark here that there is scarcely a sanitary act that the Corporation of Dublin attempts to enforce in its entirety. Indeed there are some that they will not touch at all, for very obvious reasons. And let it be here stated, that some of the landlords of the worst class of houses in Dublin are connected, by office or otherwise, with the Corporation.

The "sweating system" in the tailoring business is a terrible evil, and it appears by all accounts it is increasing in connection with several large drapery establishments as well as outside them. Upwards of a dozen of years since the writer of this article gave an exposure in a Dublin newspaper of the "sweating system," and of the abuses in connection with several other trades, and the secretaries of the trades he noticed confirmed the writer's statements in every particular. The evidence was all obtained single-handed and by personal observation. The exposure effected some good at the time, but had the trades bodies rallied round the writer and furnished him with information of the evils in connection with their trades, a reform would have been effected long since. Two or three of the trades bodies at the time thanked the writer very much, and moved at their meeting a letter of thanks which was duly forwarded; but the majority of the trades, from fear or hesitation held back, so crying evils went on increasing from year to year ever since.

We believe the result of the Commission in Dublin, on the Factory and Workshops Acts, will be an improvement; but it depends a good deal on workmen themselves, and the enforcement of the Sanitary Acts, at present shamefully neglected by the Corporation of Dublin, and members inside that body, in conjunction with others outside it, interested in opposing social and sanitary reform.

#### THE STATE OF THE STREETS.

RESPECTING the condition of the streets, and the manner in which their repair and cleansing are performed by the staff of the Corporation, a correspondent writes:—

I would suggest that, instead of the paving and sweeping being done by a few men scattered over the city in parties of two and three, &c., and who generally appear to be more anxious to put in time than to get work done, that the men should be employed in gangs, who should be continually under the eye of a competent inspector. Again: I often observe that there is repaving done where it is not required. As an instance, there was a very long crossing wholly taken up a week ago at the end of New-street, that required but to be repaired in a few places. Another great waste of funds is in the plan of overlaying the newly-laid pavement with a great quantity of gravel, which in fine weather is almost immediately turned into dust, and in wet produces seas of mud. Here we have the great expense of the gravel and of laying it, and then of removing it in the shape of mud.

Several cases might be pointed out, but the jobbers in our Corporation brawl and laugh, and the heavily-taxed citizens seem content to "grin and suffer."



## STATUES.

A MEMORIAL statue and fountain to the late Sir John Gray are spoken of, and subscriptions are being gathered for the purpose. Without much effort the work could be accomplished within the course of next year. Will a resident artist be sought for?

The preliminary works for the placing of the Grattan Statue *in situ* are in progress.

## BOOKS RECEIVED.

Experiments on the Strength of Cement. By John Grant, M. Inst. C.E. London: E. and F. N. Spon.—History of England, from the Earliest Period to the Present Time. London: Cassell, Petter and Galpin.—Studies in Design. Part XI. By Dr. C. Dresser. Same publishers.

## SANITARY AND OTHER NOTES.

**RATHMINES WATER SUPPLY.**—Recent reports and correspondence went to show that there was a great pollution of the water of the Royal Canal by the sewage of Newbridge, Naas, and in fact the whole Curragh, and that, consequently, the water supply of Rathmines was unfit for use. Mr. C. Mulvany, C.E., engineer of the company, writes to the secretary of the Canal Company, denying this pollution, and at the request of the directors of the company, Professors Cameron and Bell have made analyses which go to prove that the water, although it is undoubtedly polluted to some extent, is not unfit for use, but positively wholesome. Professor Cameron, our public analyst, gives us the chemical composition of the water, and also its physical properties, and he tells us "that it contains a much smaller amount of organic impurities than the quantity which, in the opinion of the best authorities on the subject, should render water unusable."

Professor Bell says, in alluding to the components, "this water must be considered as naturally good and wholesome. The solids in solution are moderate in amount, and consist chiefly of carbonate of lime. The water, consequently, softens considerably on boiling, owing to the partial deposition of this carbonate."

What will Mr. Brett, the County Surveyor of Kildare, say to the above statements? It ought to be in his power to prove whether a portion of the sewage from towns in Kildare reaches the canal or not. Apart, however, from any sewage pollution from drains or sewers, it cannot be denied that from canal boats comes no small quantity of pollution, and a good deal of animal and other filth is cast out betimes from canal barges. With all due respect to the analysts who have reported upon the water of the canal, we hold that it does receive sewage pollution, and we were often a witness of the casting in and escape of nuisances to the canal. It would, of course, take a very large quantity of sewage or other nuisance to render the water of the canal very bad; but the fact is undeniable that the water receives more or less sewage and other pollution twixt Kildare and Dublin, and at other places on its course.

There are several prosecutions pending against owners of houses on sanitary grounds. On Saturday Mr. William Russell, of 66 Mountjoy-square, an extensive owner of house property in the city, was summoned for allowing the houses 2 and 4 Royal-row to be in a state unfit for human habitation, by reason of the roofs, doors, and windows, being out of repair, and the privy and ashpit accommodation insufficient. After some evidence was given on the part of the prosecution and the defendant, the magistrate adjourned the case for three weeks to enable Dr. Mapother to examine the premises. If the decision then is against the defendant he must pay the costs. North and south of the city, it may here be observed, there are numerous dwellings in uninhabitable condition, and also a number of dangerous structures, which ought long since to have been taken down, but they are allowed to fall of their own accord, with the usual results.

Two analysts have testified to the wholesomeness of the water supplied to the townships of Rathmines and Rathgar by the Grand Canal Company. No evidences of contamination, we are told, could be discovered from their analyses. Doctors sometimes agree, and patients live.

**OWNERS OF HOUSE PROPERTY v. THE SANITARY AUTHORITIES.**—A meeting has been held since our last publication of the owners of tenement and other house property in Dublin, for the purpose of taking into consideration the best means

of protesting against the arbitrary acts of the Public Health Committee. It was arranged to have counsel's opinion taken as to how far the sanitary authorities were acting legally in interfering so far as they were now doing.

## HOME AND FOREIGN NOTES.

**GAS.**—The half-yearly meeting of the Alliance and Dublin Consumers' Gas Company was held yesterday. The report presented was a very favourable one, and contrasted strongly with those of past six years. A dividend of seven per cent. was declared. The salary of the manager is to be raised to £1,000 per annum.

**PROJECTING SHOP FRONTS.**—A man named Stevens, North Cumberland-street, was summoned by the Corporation for putting up a shop front which projected beyond the line of adjoining houses, in contravention of the Dublin Improvement Acts Amendment Act, 1861, and without any permission from the proper authority. The magistrate (Mr. Woodcock) remarked that "such outside shop fronts had grown into a perfect nuisance. First one tradesman in a street would erect one, then others would follow his example, and at last the whole street would be filled with them." We are glad to record another instance of action taken by the officers of the Corporation, and hope they will persevere in their endeavours to put the law in force.

**SOCIAL SCIENCE CONGRESS.**—The congress takes place this year at Brighton, as we before mentioned, opening on the 6th and extending to the 13th. The Mayor will preside at the opening, and in connection with the Congress there will be an exhibition of sanitary and educational appliances.

**THE SPREAD OF DEGENERACY.**—Our contemporary the *Sanitary Record*, in an article suggested by a paper of Dr. F. Ferguson, on the Degeneracy of the Factory Population in England, writes:—"The labour of the mill and the evolution of the system must form a great strain upon the powers of these imperfectly developed creatures, who, in their turns, are the prospective parents of the next generation. Is there some grim Nemesis behind the steam-engine, we are tempted to ask? and will evolution develop a tiny creature, not only fit, but suited only to guide the steam-engine which has so largely done away with the need for thews and sinews? Will a nation of pigmies with mechanical appliances be better suited to the future condition of mankind than a race of wonted stature? Will the rifle and the rifled cannon enable a dwarfed race to maintain themselves against more stalwart races? Whether or not, the experiment is apparently to be tried ere many generations are past. Possibly England may be purchasing her commercial prosperity at the cost of the physique of her masses."

**"THE IDEAL, THE SPIRITUAL, AND NATURAL IN ART."**—Speaking of Michael Angelo, a writer in the last issue of the *British Architect* gives expression to some strange utterances. Of them, as a whole, we might say, in the words of Byron—what we understand we like—

"But as for what is incomprehensible,  
We dare be sworn 'tis full as sensible."

Here is an extract:—

"The raging waves of the Sea, the darting Lightning and the Thunder-cloud, have a Beauty of their own. Among the perils of the former, and under the awful aspect of the latter, a meaning may be found for the Term Spiritual Art, and MICHAEL ANGELO's contribution to it be understood. It is altogether out of the ordinary range of Artistic ideas in this country. There has been plenty of idle make-believe appreciation of MICHAEL ANGELO among us for a Century or more, but his Spirituality is thrown away upon us. The Artist this country would like, would go out of its way to honour and covet is not BUONAROTTI—twelve years wandering as a Beggar up and down Italy, swearing oaths, and working like a common Workman all the long days of his long life for the love of God. No! Our favoured Artists are altogether most unlike a Man of that character."

The Scott-Moncrieff tramway car, which is worked by compressed air, was recently tested on the Govan and Glasgow Railway. On two journeys out of the three the car started with a pressure of 300 lb. to the square inch, and on the third, which was commenced with a pressure of 200 lb., the speed attained was 10 miles an hour. The car is reported to have been fully under control; the speed could be increased or reduced at pleasure, and the operations of starting, stopping and reversing were readily performed. The estimated cost of the power is 1½d. per mile, whereas horse-power is calculated at 7d. a mile. The vehicle resembles an

ordinary car, but is a little higher, the reservoir of air being carried on the roof.

**UNFINISHED BUILDINGS.**—Many building schemes are abandoned, and with them, if possible, the architects whose services have been employed. Some would-be builders endeavour to make an express stipulation to the effect that no charge shall be made for the drawings, unless the works they represent are executed, and very often they succeed. Men young in the profession, and blind as yet to their own interests, agree to this, and learn by experience what bad policy it is to become a party to irregular proceedings. But why should a practice, looked upon as dishonourable by the members of another profession, among architects be considered as optional? If a solicitor undertakes a cause on the understanding that he is to receive his fees only in the case of his client proving successful, he loses caste. It is not that he has committed an act in itself base; but he has, for personal objects, done a thing injurious to the profession of which he is a member. Should not an equally high standard of professional conduct be reached by architects? In many instances in which the intention to build is abandoned, although no stipulation has been made to meet the contingency, the client expresses great surprise at the amount of the charges he is requested in due course to disburse. He points out, quite unnecessarily, that he has received no benefit from the labours of the architect, and promises to him future gain in compensation for a lenient consideration of the present case. The architect argues that the Institute "scale" has provided for the possibility of works being abandoned, and that he has made his charge in accordance with it. The client retorts that he hates paying "for nothing."

**A BIG TREE FOR THE CENTENNIAL.**—California papers mention the fact that a Mr. Vivian is preparing a large piece of one of the Tulare Company big trees to exhibit at the Centennial next year. The piece of timber selected is 16 ft. long and 21 ft. in diameter at one end and 19 ft. at the other. The heart of this will be taken out, leaving only about 1 ft. of the body of the tree attached to the shell or bark. It is necessary to divide it into parts in order to allow it to pass through the numerous tunnels between California and Philadelphia. The eight parts will weigh between 30,000 and 40,000 lb., and will require two cars for transportation. One solid foot of this tree weighs 72 lb., being 10 lb. heavier than so much water. This timber was taken out of the "General Lee," a tree 275 ft. high, which contained over 200,000 ft. of lumber, beside, probably, about 200 cords of wood. The "General Grant," a much larger brother tree than the "General Lee," and the largest in the world, growing in the same grove, is left standing.

## TO CORRESPONDENTS.

**WORMS IN WOOD CARVINGS.**—The above correspondent and others write to us to give them recipes to stop the ravages of the worm in timber and wood carvings. We cannot give them better advice than recommending them to procure Mr. Britton's work on "Dry Rot in Timber," noticed in our last two issues. It is full of information upon the subject on not only how to prevent dry rot, but how to prevent the ravages of worms and insects in timber, and how to destroy them and save the wood from destruction. The work is published by E. and F. N. Spon, Charing-cross, London, and may be ordered through any bookseller in Dublin.

**A YOUNG FORESTER.**—Our young correspondent asks us a series of questions which should be asked through the medium of a gardening or agricultural publication. We cannot tell him which is the best book upon the subject which he mentions. If he writes to our contemporary, the *Farmers' Gazette*, it will doubtless answer all his queries.

**THE LITERATURE OF GOTHIC ARCHITECTURE IN IRELAND.**—The continuation of this subject is held over.

**FAC-SIMILES OF NATIONAL MSS OF IRELAND.**—We gave a description of this valuable work of reproduction by the photo-zincographic process in our last volume, as detailed in Mr. J. T. Gilbert's letter in the Appendix to the Sixth Report of the Deputy-Keeper of the Public Records in Ireland. Additional information is now given in the Public Record report of the sister kingdom, which we may allude to anon. Next year's report of the Deputy Keeper in Ireland will probably tell us (up to the date of publication) the progress that is being made exclusively with regard to our National MSS.

**DANGEROUS STRUCTURES.**—The subject is dwelt with elsewhere. Besides the act mentioned, the Public Health Act recently passed applies to the subject, and it should be enforced without fear or favour.

**W. C. (Moorgate-street, London).**—There is no agent in Dublin for the supply of the articles mentioned.

**B. A. (Belfast).**—Not commenced yet. The plans are ready, but the money does not seem to be forthcoming.

**A STAIRCASE HAND.**—The work of Mr. Jones on "Hand-railing" is based on the same principle as the work of Riddell. The stuff is cut out square to the plank, and no falling mould is needed.

**BITUMINOUS TUBES.**—A correspondent asks whether bituminous tubes are manufactured for sale, and where they can be had, and if they are calculated to bear a high pressure, as he requires them to convey water to cisterns on top of his house. Bituminous tubes have been tested up to a very high pressure. They would be very suitable for the purpose mentioned by our correspondent. Their manufacture in quantity has been unavoidably delayed, but the patentee informs us that he hopes shortly to have them in the market. Several articles (in type) are held over for want of space.

## NOTICE.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

Correspondents should send their names and addresses, not necessarily for publication.

Post Office Orders and Cheques should be made payable to Mr. PETER ROE, 42, Mubbot-street, Dublin.

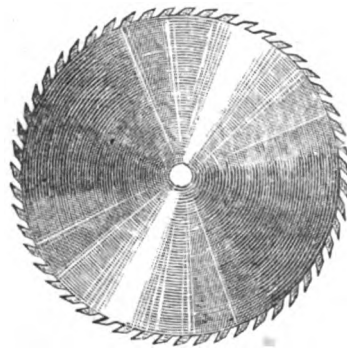
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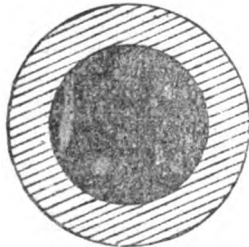
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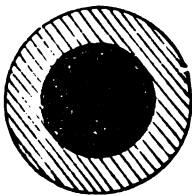


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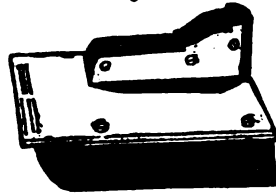


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# The Irish Builder.

VOL. XVII.—No. 380.

*Notes on Ancient and Modern Limes, Mortars, and Cements.\**



THE re-publication of Mr. Grant's papers, which were originally read at the Institution of Civil Engineers in the sessions of 1865-6 and 1870-1, suggests

some remarks on mortars and cements in general, past and present. We do not purpose to review Mr. Grant's volume, as his statements and facts have already undergone much discussion, which, on the whole, is very favourable to the views of the author. In his preface he says:—"Nothing has occurred since these papers were read to invalidate the facts or make it necessary to modify the statements made by the author, who hopes that they may form a safe starting point for anyone who wishes to pursue the subject further." To anyone engaged in works of drainage or building in general, a study of Mr. Grant's experiments on the strength of cement must prove highly useful.

We are informed by Mr. Grant that, previous to 1859, Roman cement was with few exceptions the only cement used for the inverts of London sewers, the arches being set in blue lias lime; and that Portland cement was scarcely ever tried. Portland cement previously in London had been confined to ordinary building operations, such as external plastering; but in some harbour works on the south coast of England and in the Channel Islands it was used in the form of concrete blocks. On the Continent, particularly in France, there were large harbour and dock works constructed with Portland cement made in England.

The series of experiments commenced by Mr. Grant in 1858 resulted certainly in proving the great value of Portland cement; but even yet there are many engaged in building or drainage works who contend that Roman cement is superior. There is one great advantage in Portland cement over Roman: the former improves by being kept and by exposure to the air, whereas the latter loses its strength by being kept exposed. Apart altogether from the chemical properties of either cement, as far as we have had any experience, we believe that the Portland cement now used in drainage work in London, when supplied by respectable manufacturers, is preferable to Roman cement. We have noticed for some years back in this country a large quantity of the Roman cement supplied is a very poor and trashy article indeed.

The manufacture of Portland cement is very simple, its composition being a judicious and careful mixture of certain clay and chalk. At present it may be stated that the manufacture of this cement is nearly wholly confined to the Rivers Thames and Medway, the clay being obtained from the creeks and bays between Sheerness and Maidstone. In the selection of the clay care is needed, for it must be as free of sand as possible. The

proportion in which it is used depends upon the quality of the chalk with which it is incorporated. The white chalk district has a proportion of from 25 to 30 per cent. of clay, while in the grey chalk district the proportion of clay varies from 16 per cent. to 20 per cent. up. According to Mr. Grant's tables, both districts have furnished satisfactory results.

From a recapitulation of the results of the tests, as shown in the tables given by Mr. Grant, we will quote here a few of his conclusions in favour of Portland cement. Our object in doing so will be seen hereafter, when methods in use a century or centuries ago are compared with present methods of building in water. The world is certainly growing wiser in some things; but whether, on the whole, we are erecting more durable buildings than our forefathers, it may be well doubted. Our ancestors knew what good mortar and concrete were, and how to make them, though unacquainted with Roman or Portland cement, so called.

Here are some of Mr. Grant's conclusions:—

5th. Portland cement has been proved to be peculiarly suitable for hydraulic works, and may be procured in any quantity and of the highest quality.

6th. Portland cement, if it be preserved from moisture, does not, like Roman cement, lose its strength by being kept in casks or sacks, but rather improves by age, a great advantage in the case of cement which has to be exported.

8th. Neat cement is stronger than any admixture of it with sand.

9th. Cement mixed with an equal quantity of sand (as has been the case throughout the Southern Main Drainage Works) may be said to be, at the end of the year, approximately three-fourths of the strength of neat cement.

10th. Mixed with two parts of sand it is half the strength of neat cement.

14th. The cleaner and sharper the sand, the greater the strength.

15th. Very strong Portland cement is heavy, of a blue grey colour, and sets slowly. Quick-setting cement has generally too large a proportion of clay in its composition, is brownish in colour, and turns out weak, if not useless. [Note well this and the following conclusions.]

16th. The stiffer the cement mortar, that is, the less the amount of water used in working it up, the better.

17th. It is of the greatest importance that the bricks or stone with which Portland cement is used should be thoroughly soaked with water. If under water in a quiescent state, the cement will be stronger than out of water. Table XIX. shows that cement kept in water was one-third stronger than that kept out.

18th. Blocks of brickwork or concrete made with Portland cement, if kept under water till required for use, would be much stronger than if kept dry.

19th. Salt water is as safe for mixing with Portland cement as fresh water.

20th. Bricks made with neat Portland cement are as strong at from six months to nine months as the best quality of Staffordshire blue brick, or similar blocks of Bramley Fall stone, or Yorkshire landings.

21st. Bricks made of 4 parts or 5 parts of sand to 1 part of Portland cement, will bear pressure equal to the best picked stocks.

22nd. Portland cement concrete made in the proportion of 1 of cement to 8 of ballast, in some cases, of 1 to 6 in others, has been extensively used for the foundations of the river walls, piers of reservoirs, and foundations generally, at Crossness and Deptford, with the most perfect success, and it is believed that it might be much more extensively used as a substitute for brickwork or masonry wherever skilled labour, stone, or bricks are scarce, and foundations are wanted at the least expenditure of time or money.

23rd. Wherever concrete is used under water, care must be taken that the water is still, as otherwise the current, whether natural or caused by pumping, will carry away the concrete and leave only the clean ballast.

24th. Roman cement, though about two-thirds the cost of Portland, is only about one-third its strength, and is, therefore, double the cost measured by strength.

25th. Roman cement is very ill-adapted for mixing with sand.

Finally, Mr. Grant says that, whilst recommending Portland cement as the best article of the kind that can be used by engineers or architects, still he would warn anyone against its use who is not prepared to take trouble or incur the trifling expense of testing it. If manufactured of improper proportions of its constituents, or improperly burned, it is likely to do more mischief than the poorest lime.

A native architect of ours named George Semple, who practised in Dublin in the middle of the eighteenth century, and who was engaged on several public works, notably that of the re-building of Essex Bridge, wrote at the close of his career, near the end of the last century, a rather curious yet still useful book, entitled "Building in Water." The first part of Semple's volume is devoted to an account of the repair and the subsequent re-building of Essex Bridge, with a diary of each day's proceedings during the continuance to the completion of the work. The second part of the volume is devoted to the building of stone and other works in fresh and salt water, and to building in water generally. The author refers a good deal to the methods made use of by the ancients, and on the particular qualities of lime, mortar, and grout, and throughout the volume, which is well illustrated with drawings and plans of his own, he furnishes much information derived from his own experience on the qualities of building materials. When George Semple undertook the building of Essex Bridge, little indeed was known of modern hydraulic limes and mortars; but he has left us evidence of his practical sagacity as a bridge builder, and his knowledge as to lime and mortar, although he may have known little as to their chemical properties.

It will be interesting to compare Semple's experience and methods of work with that of the present hour, and for that purpose we will quote his opinions, and those opinions embodied in practice under his guidance. Semple's father was a building workman as far back as 1673, and the Dublin architect himself, at the period of his writing, had upwards of sixty years' experience. He says:—"I can safely affirm that good mortar—that is, mortar made of pure, well-burnt limestone, and properly made up with sharp, clean sand, free from any sort of earth, loam, or mud—will, within some considerable time,

\* "Experiments on the Strength of Cement, chiefly in reference to the Portland Cement used in the Southern Main Drainage Works." By John Grant, M. Inst. C.E. London: E. and F. N. Spon.



actually petrify, and as it were turn to the consistence of a stone." . . . . "I admit that mortar will not grow so soon hard in water as upon land, but I am fully convinced that good mortar will in reasonable time grow as firm and as substantial in water as upon dry land." . . . . "In pulling down Essex Bridge and repairing Ormond Bridge, we found the mortar on the lower courses of the piers better cemented to the stone than it was on the upper works, for a wet stone or a wet brick imbibes the mortar and holds it faster than a dry stone or brick will do. I need not explain what I mean by sharp, clean sand, but I shall give this one caution—that it is better to put too much sand in your mortar than too little. I know workmen choose to have their mortar rich, because it works the pleasanter; but rich mortar will not stand the weather so well, nor grow so hard as poor mortar will do." . . . . "Now let us suppose that a peck of roach lime was slacked into a whitewash, and then mixed with two or three barrels of sharp sand, so that every particle of sand partook, and as it were got a white coat of this liquid lime, such mortar that would only appear to be mere sand, supposing such could be wrought into mortar, would sooner harden and petrify, either in or out of water, than if there had been ten times that quantity of lime made up with it; but nevertheless observe that I do not recommend that proportion for mortar."

Speaking of the limestones of Ireland, Semple was of opinion that no limestone whatever could have more excellent qualities, and he goes on to say:—"And indeed it has some useful qualities not much known among the generality of workmen, as, for instance, our limestone will make exceeding good tarras for water works, for which purpose you are to prepare it thus:—Get your roach lime brought to you hot from the kiln, and immediately pound or rather grind it with a wooden mawl, on a smooth large stone, on a dry boarded floor, till you make it as fine as flour, then without loss of time sift it through a coarse hair or wire sieve, and to the quantity of a hod of your setting mortar (which on this account ought to be poorer than ordinary) put in two or three shovels full of this fine flour of roach lime, and let two men for expedition sake beat them together with such beaters as plasterers make use of, and then use immediately. This, I can assure you, will not only stand as well, but is really preferable to any tarras."

In some localities of Ireland we may note here that the Calp, the second or middle division of the limestone group of this country, yields a valuable hydraulic lime, and some of the dark coloured beds of the Calp have been long utilised by the Shannon Commissioners as a source for the material of their hydraulic mortar. The chalk formation in Ireland is extensively distributed in the basaltic plateau of the County Antrim. This chalk is pretty hard, but brittle; it is not used as a building stone in Ireland, but it is largely quarried for lime.

Here is one of Semple's experiments to prove the petrifying qualities of mortar,—mortar such as he desired to use:—"Take ten pounds of limestone fresh quarried, pound it into a very fine powder, and take the like quantity of sharp, clean, fine sand, get thoroughly burnt roach lime hot from the kiln, the like quantity, put into a vessel and pour water upon it leisurely, and stir it gently till you find it is all dissolved, and, as it were, melted into a hot liquid, rub and

thoroughly mix the flour of limestone with the sand, and, without letting the lime liquid have time either to cool or evaporate, stir in and most effectually mix and work them all together very stiff, and beat them thoroughly on a clean boarded floor, and then make the mortar into blocks about the size of a brick; bury one of these blocks in very damp or wet ground, put another entirely in water, and keep a third in some dry place. Now I am confident that each of these blocks will, in a reasonable time, actually petrify into stone, and become as much so as if they had been cut and wrought out of a rock, and that they will endure calcination, and become good lime afterwards, but not so rich as that was from whence they were derived. And with respect to time: that which is deposited in the bowels of its own natural mother, will grow first into stone, that laid in the water will be second, and that which is kept in the dry place will be the last, and of a short brittle nature. But the first, if in a large block, will not only become hard, but stout and stubborn, and would stand and give a great resistance to a hammer or punch; the second would be more free, and the third fly off short."

Now here were hints thrown out by Semple upwards of a century ago, to remain long years unavailed of, for it is only a few years since we have had attempts at manufacturing artificial stone, and cemented brick blocks, and cemented stone blocks, and, finally, blocks of concrete. Drainage and main drainage experiments hastened other experiments, and, by utilising the wisdom of our ancestors and modifying their methods, we are reaping some of the fame that by right belongs to them as pioneers in the art of building in water.

In another article we will have something more to say of Semple, his predecessors and successors, and of the subject under notice in general.

#### LONDON BRIDGE, AND CARLISLE BRIDGE, DUBLIN.

We annex an extract from the *Athenæum* on the proposed widening of London Bridge, a subject which has excited considerable interest in the sister metropolis from the manner in which the work was proposed to be done. The general opinion is against its widening by the application of iron, and the current voice is in favour of the erection of a new bridge further down the river. In these respects there is a similarity between the case of London Bridge and Carlisle Bridge. Unless the approaches to London Bridge could be widened, the enlargement of the bridge itself would confer a very doubtful benefit. We would be sorry to see the bridge tampered with, either by an addition in stone or iron. In respect to our own bridge, the approaches are wide, but we have already said what we felt upon the matter and manner of its enlargement. As in London, we go in thoroughly for the erection of a new bridge further down the river, and we were the first, or one of the first, at least, who advocated this several years since. The public now are almost unanimously in favour of another new bridge to span the Liffey at some point near to or below the Custom House. The exact site will have to be carefully considered in view of the future traffic of the city.

"The scheme now under discussion for increasing the means of transport from one side of the Thames to the other, either at or below London Bridge, have been more than once considered in these columns, especially with reference to the several methods proposed for widening London Bridge, either by extending the footways on iron brackets projecting from the existing faces of the stonework, or by widening the way by adding new stonework to the existing structure on

both sides, repeating the existing noble design without modification. It would be hard to justify either of these proceedings on economical grounds, unless, indeed, it could be proved that it is desirable to concentrate all the traffic on a single line of way, as it is now concentrated. It would be difficult, indeed, to prove this. But, supposing the thing proved, it would remain to be established that the cost of widening the approaches to London Bridge on both sides, and that of widening the bridge itself, would not exceed, in proportion to the benefit to be obtained, the cost of a new structure to the east. It would be quite useless, or worse than useless, to widen London Bridge without enlarging the approaches to it. The bracketing plan is condemned on the face of it, both from an architectural standpoint, and on account of the risk of overloading the existing foundations. There can be no doubt that, with moderate care, the alternate plan of extending the work on each side, and on new foundations, could be executed with complete success, and with no injury to the architecture. It would be far better, however, on every ground to build a new bridge to the east of the Tower, and to leave the existing structure as the architect left it, one of the finest works of its kind in the world. A new bridge must be built before many more years are past, and the authorities had better take it in hand at once than try and patch up an increasing difficulty."

#### UNKNOWN DUBLIN.

BY THE "OLDEST INHABITANT."

Edited by Mark Philip O'Flanagan, T.C.D.

NORMAN KEYS—first visit.

It is now many, many years since we first followed the military band from the Castle across Semple's Bridge and along Upper Norman Key towards the Royal Barracks. The two Keys were thriving places in these days, and to our young minds there was much to be seen to attract, amuse, and excite wonderment. The booksellers', stationers', and print shops received the largest share of our attention, for hungering and anxious we read the titlepages of quaint old tomes and magazines, and yearned for the time when we would be old and rich enough to purchase a few of them. Alas! we had no money of our own in these early schoolboy days, and all we could save out of our gift pennies amounted to very little in the month. Between the temptation to buy apples or marbles, and to lay out even sixpence for such modest volumes as the "Battle of Aughrim," "Valentine and Orson," "The Seven Champions of Christendom," or the lives of the "Irish Highwaymen," to the credit of literature be it recorded, we often denied ourselves the "sweets" and the playthings, and went home rejoicing with the possession of the book. If we must confess, let it be told bluntly and openly—we often paid visits to bookstalls, pretending to be looking for some old volume, but the real object was to obtain a sly read or look at its contents. Some of the old bibliopoles of the dead walls were genial old fellows to our young minds, while others were the reverse. While some encouraged us to make a purchase, not knowing how empty our pockets were, others smelt our insolvent position, and warned us to "Lay that book down, and be off!" Other old curmudgeons insulted by telling us to "Get off to school," or to "Go home and say your prayers, and get your mother to put ye to bed." Was it not hard to have our young literary instincts crushed in this manner? Nevertheless, we kept visiting the Keys right and left, north and south, and after some considerable time we became recognised by

the bibliopoles of the walls, who were eventually glad to see us, even boys as we were, and allow us to take down from their shelves whatever book we cared to see. Peace be to the ashes of these old booksellers whom we had known along each line of Keys, from Gandon's Customs to Gandon's Courts of Justice! The haunts of many of them know them no longer. Their ancient recesses and courtways are built up; their dead walls are bare, and their well-patronised shops have changed hands a dozen of times by men of other trades and tastes. "Norman Keys" are suggestive of many other and earlier reminiscences, but of these we will allow the "Oldest Inhabitant" to speak.

"I have a lengthened acquaintance, sir, with this side of the river as well as the opposite, and I cannot say that either the upper or lower portion of these Keys have at all improved. Indeed, I think, compared with what they were in my younger days, Norman Key, upper as well as lower, has gone down considerably. As long as I can remember, and in the memory of my father and grandfather, these two Keys were occupied by shops or merchants' premises. In the last century there were to be seen along here, wealthy merchants' and traders' premises—merchants in the wholesale as well as the retail trade; and from the nearness of this place to the old as well as the new courts of law, barristers as well as attorneys had their offices here. The proximity of the place to the once-renowned Norman Market, had much to do with inducing traders of all kinds to settle here, particularly those connected with supplying domestic wants. The trade of this quarter was a very prosperous one in the eighteenth century, but particularly so during the era of the Irish Parliament. There was a ready access from the noted and historic Spill Lane to Norman Key upper, and the butchers' market formed a connecting link between the two. I do not know at what particular time the Key was first built upon; all I know is, that it is entirely made-up ground for several feet deep. To find out the truth of this you need only compare the level of the ruins of St. Mary's Abbey with the level of the Key. The floor of the old abbey is several feet below the street overhead, so this shows that the whole district here has been raised several feet during the last three centuries.

"Coming down, however, to more modern days, when this Key was in its infancy. In 1682 Sir Humphry Jervais built a bridge of timber over near where Richmond Bridge now stands. It lasted, however, but two years when it was swept away with a flood. In 1688-4, the Corporation began the building of a new stone bridge. This bridge, about 1752, was near sharing the fate of the former one, but its condition was examined, by order of the authorities, by George Semple, the architect, and his brother John, and was carefully pinned up and repaired. George Semple who was the architect of Essex Bridge—the one preceding the present recent erection—pointed out the weakness of Norman Bridge, for as he took soundings he was enabled to tell what sort were the foundations on which it was built. He has left us particulars in his work on "Building in Water" regarding both the foundations of Essex and the former bridges. It is sufficient for me to say that for several feet down from the bed of the river, the ground is naturally soft, and the present bed of the

river must be a great deal higher, indeed, than what it was originally. Norman Market was opened, I believe, about the year 1682, so that the building of the bridge greatly increased the business on this side of the river. Previously the business was increased by building of the first Essex Bridge in 1676 which (like the first Norman Bridge) was built by Sir Humphry Jervais.

"Sir Humphry's building operations appear to have been very unfortunate. In 1687 or about eleven years afterwards, a violent storm accompanied by high tides swept away one of the piers and arches of Essex Bridge. The bridge was afterwards repaired, and again by George Semple, before he ultimately commenced the re-building in 1753. From this date down to the early part of the present century may be said to have been the best business era of the Keys. My father well remembered the sanguinary days of the Liberty; and Ormond boys, when offending butchers and butchers' men, were tossed over the Key walls, or hung like their meat from their own hooks. The bravos from Patrick-street and Kennedy's-lane, and other places on the south side, made many a raid across Norman Bridge for a free fight with their opponents and brother chips on the north side. A late Irish Master of the Rolls, in a book published nearly thirty years since, gave a graphic account of some of these doings. I dare say, Mr. O'Flanagan, you have read 'Ireland Sixty Years Ago,' which is the name of the book. The then sixty years has now increased to nearly one hundred, and is becoming a grandfather's story. The building of the present Norman Key Bridge dates from 1813, the previous bridge having been swept away in 1802, the first stone of which was laid by the Dowager Duchess of Richmond, the wife of the then viceroy. It is from a design of a Mr. Savage, an English artist. In sinking for the foundations of the present bridge several relics were found, including coins of Elizabeth, Philip and Mary, besides some boats 18 feet in length, one of which contained a human skeleton. A large mill stone was also excavated 16 feet in diameter. All these relics lay several feet below the present or the then bed of the river.

"You say you would like to know the composition of the merchants and traders who resided here towards the close of the last century. Let us take the era of the Irish Parliament, and see the class of traders that were living on both Keys before the Union. It will serve for comparison with those which I may give hereafter, who resided here twenty and thirty years after the Union. It will also serve, sir, as an index to the trade of the locality in the last and present century.

"In 1786 the following names and occupations were to be found on the two Keys. The list is a general, not a complete one. On the upper Key lived John Finlay and Co., bankers, at 11, afterwards at Jervis-street; Galbraith Hamilton, merchant, member of the Common Council of the old Corporation and of the Trinity Guild, and James Hamilton, Alderman and City Treasurer, as also a director of the Bank of Ireland, then held in Mary's Abbey, both lived at 15; Thomas Martin, watchmaker, at 19; L. Fox, a barrister, at 18; Sieur Palmé, a physician, at 7; John Dickinson, ironmonger, at 10; Sarah Eades, fishing-tackle maker, at 21; Thomas Eades, of the same

family and trade, lived in Capel-street, and this family continued long in the trade on Norman Key. John Connolly, china and glass seller, at 18; David Clarke, merchant, at 9; John Kimpston, confectioner, at 8; Robert Kent, shoemaker, at 16; John Heany, pewterer and brazier, at 17; George Simpson, ditto, at 18; George Warne, shoemaker, at 7; Andrew Faucett, at 18; Thomas Potter, hosier, at 8. It will be seen, as at the present day, that the houses were in some instances occupied by two people in trade as well as at the present day. Barristers and solicitors often had chambers up stairs while traders carried on business below, but generally the houses were in the possession of one firm or family.

"On Lower Norman Key were the following persons in trade, professional and otherwise: Wm. Speer, of the firm of Speer, Geoghegan, and Co., druggists, at 11—William Speer was a Common Council man and a member of the Apothecaries' Guild; Richard Brangan, carver and gilder, at 16; Henry Kennedy, licentiate of the College of Physicians; Edmond Dillon, apothecary, at 26; Samuel Spencer, barrister, commissioner of bankrupts, at 4; John Gale, barrister, Robert Magee, merchant, and one of the trustees of the Royal Exchange, at 27; George Sutton, merchant and alderman, at 14; Joseph Wilson, merchant, at 10; Richard Williams and Co., glassmakers, at 15; Robert White and Co., druggists, at 31. The grocer and tea-dealer element was pretty strong in the last century and the present on both Keys—William Vane, grocer, at 25; Henry Thwaites, ditto, at 23; Daniel Taggart, ditto, at 24; George Meares, ditto, at 29; James Purcell, wine merchant, at 36; Leckey and Wilson, merchants, at 8; James Kennedy, ditto, at 20; Richard Kelly, stone-cutter, at 36; William Jones, cabinetmaker, at 34 (?); John Hendrick, merchant, at 9; Hawkesley and Rutherford, merchants, at 22; Joshua Forbes, merchant, at 12; Anne Daly, tea dealer, at 3; Francis Collins, china merchant, at 5; Oliver Carter, merchant, at 29; Robert Bell, factor and broker, at 18; Elizabeth Archer, grocer, at 32. A number of attorneys practising at the different law courts in Dublin resided on both Keys and in the contiguous streets.

"The upper Key, both before and after the Union, and down to a late period, was noted for old-established firms in different branches of trade, and some firms of boot and shoe makers were here of long standing, and made large fortunes. It was not until the present century that printers and booksellers began to settle down on the northern 'Keys,' their ancient quarters being Castle-street, Cork Hill, Skinners'-row, Parliament-street, and the old Wood and 'Blind' Keys on the opposite side of the river. As soon as the new Courts of Law were advancing towards completion, the printers, booksellers, and publishers began to migrate north of the river, and other trades followed in their wake. Connected with some of these printing and bookselling firms, there is much interesting literary gossip to relate of men and manners and other varied matters, but this must form the subject of another visit. On our next visit, Mr. O'Flanagan, I will tell you of things unknown, and of things not generally known, connected with the two Keys in the present century down to a late period."

After a friendly private chat, we parted with our esteemed friend the "Oldest Inhabitant."

## ROADS AND PAVEMENTS—

THEIR CONSTRUCTION, WEAR AND TEAR,  
SANITARY ASPECTS, ETC.

(Continued from page 276.)

POSITIVE AND RELATIVE ADVANTAGES  
OF ASPHALTE AS A MATERIAL FOR PAVEMENT.

THE summary of sanitary experience in France, as to the material most preferable, are thus stated by Professor Fonnaggrives:—"L'absence du poussière, l'amointrissement du bruit, le défaut de joints permettant une imperméabilité complète, et provenant ainsi l'infection putride du sol, sont des avantages précieux que réalisent les chaussées asphaltées."

All the answers obtained as to the experience of the chief new forms of pavement display a new sense and a high appreciation of the gain obtained from noiselessness from the wood as well as from the asphalt pavements. The shopkeepers state that they can now hear and speak to their customers, and their customers can hear and speak to them, without raising their voices. It is now no longer necessary to keep their doors or their windows shut to get rid of the noise.

Preference was given to the asphalt first (if it were kept clean), for the wood next, and for granite, of whatsoever form, the last. Summaries of the answers, verbally and in writing, by occupiers in London, on the experience of asphalt pavements, as compared with granite, are given in the appendices, and also summaries of the experience of wood and asphalt in Paris.

The answers obtained to our questions from the occupiers of the chief lines of the most important trials of the new pavements in the city were, however, so few as to excite surprise at the apparent want of interest in the subject. But on inquiry it appeared that the civic condition has of late been largely changed, and that there are really very few resident citizens remaining there, living and sleeping there with their families. They had all removed to the purer air and quiet of suburban residence. A quarter of a century ago the resident and sleeping population of the city was 127,000. Last year the number of residents estimated as sleeping in the city was 75,722. Only a small proportion of the reduction of the population has been occasioned by expulsions for the formation of new lines of railway or of streets. The great mass, or full 50,000, including all the aldermen (not one of whom is known to have more than an office in the city), the Lord Mayors and their families, and many even of the hotel-keepers, have gone for less impure air and greater quiet and rest in the suburbs. These influential persons care the less about the conditions of the streets on account of the shorter time they are there. The like change which has extended to other districts of the metropolis requires to be taken into account in any new administrative arrangement in respect to them.

Mr. Sharp observed carefully the wear of the asphalt material at the points of the heaviest traffic. At these points he examined the wear of pieces, after the pavement had been laid down for more than three years, and found that on an average they had been reduced from two inches and a quarter, to not more than one inch and three quarters. But it appeared that this reduction in bulk had been chiefly by compression, and not by abrasion, inasmuch as they did not appear, so far as could be ascertained, to have lost in weight. Some specimens of the Val de Travers, taken up after four years' wear in a street of the greatest traffic, were found to be reduced about one-ninth in bulk, but to have been increased in about the same proportion in specific gravity, showing that the reduction in bulk was due to compression, not to wear. Some of the same material, taken up after fifteen years' wear in the Rue de Bergère, a street of much traffic in Paris, was found to have been reduced from two inches to two inches and three quarters in thickness, but had lost only five per cent. in weight. As an illustrative comparison, it

may be mentioned that Mr. Redman, the engineer for twenty years of the East and West India Dock Trust, stated at a discussion of the society (*vide Journal* for April, 1870, page 457), with reference to the granite tramway in Commercial-road, that the annual import and export of the tonnage connected with the docks passing over this tramway, was about 800,000 tons, and in addition to that there was a general vehicular traffic amounting to about 800,000 vehicles a year. He stated that at that time the different qualities of stone were not so well known as at present, and the result was very remarkable. The larger portion was formed of Aberdeen granite, and the remainder of granite from Guernsey, or from Herm, another of the Channel Islands. The Aberdeen stone, which was originally twelve inches thick, now averaged only eight inches, having lost four inches in four years; Herm granite had lost from two to three inches; and the Guernsey granite had lost little more than one inch in the same period.

Taking into account that the traffic under which these stone trams were subjected was apparently less than one-fifth of that to which the new material underwent in Cheapside, the extraordinary result is presented that the asphalt wear is greater than the hardest granite. If the reduction in bulk were due solely to abrasion, which is doubtful, and if it were to go on in the like proportions, the "life" of this asphalt pavement would be fifteen years. It is stated that in Paris it has lasted seventeen years. Mr. Haywood, the Corporation engineer, stated at the Institution of Civil Engineers that the granite pavement in this same street, which was laid in 1846 with cubes of granite three inches thick, lasted, with occasional repairs, until 1856. The carriage-way in the same line—the Poultry—after having been down six years, was taken up in 1852. The "life" of other granite pavements in connected lines of heavy traffic appears to have averaged about seven years. The longest example was one on London Bridge, which lasted nine years.

The absence of any returns of the traffic on the lines paved with the Limmer and other asphaltes, prevents the like comparison being made in respect to them, but they each present examples of durability greatly in advance of the granite. At the same rate of wear as the granites, so far as they could be compared, the chief specimens of the asphaltes would have disappeared. The astonishing relative durability of the chief of these materials is accompanied by a relative reduction of the amount of abraded dust such as is ground off granite, and especially from the macadam roads in Westminster Bridge, to the extent of upwards of four inches annually, producing that dust which is so peculiarly irritating and injurious to the respiratory organs. This tenacity of the material is accompanied by a feeling almost of elasticity to the tread of the foot, and yet a great non-conductibility of vibration or of sound. There is less of "sonority" than in the granite tramways; the noise of the wheels is suppressed, and only a clack of the horses' shoes is heard.

A member of our committee, who has given much attention to the construction of roads in their sanitary as well as in their commercial aspect, has been led to propose a new form of road, to obviate the difficulties as to the inclines, and effect considerable economy in road construction and wear and tear, reduction of dirt, and facility of cleansing. He forbears to develop it in its bearings on the present occasion, and prefers that it should be reserved for independent, and probably less partial, examination than might be given to it in connection with the present inquiry. It may, however, be allowable to state that it is based upon the Italian principles of the smooth wheel tracks, substituting hard and smooth asphalt for the smooth stone or granite slabs, with the advantage that the asphalt is without joints or jolts, and would be even less noisy, greatly less expensive than slabs of granite or other

stone; that the whole road, the horse track and the wheel track would be impermeable and washable, and less expensive even than the ordinary suburban macadam road; and that two miles of the asphalt track of the proposed construction may be laid down at the expense of one of granite, and three miles at the usual expense of one mile of the iron tramways.

FUTURE OF FURTHER IMPROVED APPLICATIONS  
OF STEAM POWER FOR ROAD TRACTION.

The premature decease of the late Mr. John Grantham, C.E., a member of the society, checked the prosecution of an invention he had completed of a steam-propelled omnibus carriage, to be worked on the ordinary street tramways or on these asphalt wheel-tracks, at half the expense of horse-power, and dispensing with horse-power altogether, thus reducing the dung and dirt, and the cleansing and wear of the roads. For this invention the Society of Arts has just awarded its Gold Medal.

Our late member, Mr. Bridges Adams, considered that the principle of the hot-air engine, so much in use in America for the application of power from one to six horses, would be the most eligible force for smooth road traffic.

Invention is also being directed in America to the application of small powers to dispense with horses for carriage traffic. A "fireless" locomotive has been employed by Mr. Lumm on the New Orleans tramway since the spring of 1872. It consists of an ordinary steam-engine mounted on the tram-car or on a separate truck, with a boiler having no furnace, and therefore smokeless and less liable to explode. This locomotive is supplied with water from certain stationary boilers along the route heated to a temperature corresponding to twelve or more atmospheres of steam pressure. As this water gives off steam to the engine, its temperature and the corresponding pressure of the steam continually diminish, until a new station is reached and a fresh supply of steam is taken in, which is done in little more than a minute. The force will last for about an hour, and for a stage of between eight and nine miles. It is stated that with fifteen engines an economy was effected of 50 per cent. over the use of horses. On an entire line of well-asphalted road the fireless engines would work as well as on iron trams.

If one complete line of thoroughfare could have been laid down with smooth wheel-tracks, and maintained in a proper state of cleanliness and kept safe, instead of being made slippery and dangerous by neglect and filth, Mr. Grantham's and other important efforts for a much-needed improvement might have had fair trial. But if the city corporation (or any one of the vestries) were disposed to the consideration of scientific improvement and anxious for its promotion, it could of itself do little for it, with authority over only some tenth part of a main thoroughfare, perhaps not above a tenth of the entire thoroughfare required for a proper trial of improvement, and most of the rest being in reality entrenchments of strong interests against it. The trials made in the city, much to the credit of the corporation, defective though they were in respect to cleansing—were quite sufficient when properly attended to, and, studied with the obvious means of supplying defects, ought to have led to extensive adoptions of the improvements by common consent over entire lines of great thoroughfares. But they have met with no imitation except in mere small and insufficient patches.

The fragmentary administrative areas of irresponsible local bodies to which the metropolis is subjected will therefore continue to be, as they have been found to be, insuperable barriers to any considerable advances of science and art for the security of the health and lives, and the safety and comfort of the population. The first step to any effective amendment in this respect must, therefore, be to withdraw those fragmentary inadequate powers for efficiency and economy,



and place them under unity of administration of a few persons specially qualified by engineering science and position to undertake the responsibility of the work, and to give it undivided attention. Such an authority, having the whole field of the service under their view, having large means at their disposal, and being responsible for their application, could not safely act obstructively. Such an authority would be expected to promote progress by scientific examinations, such as we have desired, but with the inadequate means at our disposal have not succeeded in obtaining, as well as by liberal trial works of different materials and different methods of fair promise. After all the complaints of inventors, some of them rivals in position and of opposing interests, and some of those complaints well founded, it is nevertheless the fact that no such advances in science and art by experiment and trial work have been made as in the public departments under scientific control.

(To be continued.)

### PAPERS READ AT THE BRITISH ASSOCIATION MEETING.

(Concluded from page 262.)

Of the numerous papers read at the meeting of the Association at Bristol, we have only space to give a summary of a few as a conclusion to those already noticed:—

#### THE CHANNEL TUNNEL.

In the Section of Geology, presided over by Dr. T. Wright, the main interest centred in a discussion arising out of a paper contributed by Professor Hébert, who argued that, in consequence of the number of anticlinal ridges running under the Channel, parallel with it, and at right angles, it would be impossible to construct the tunnel under the Straits of Dover otherwise than in a circuitous direction.—Sir John Hawkshaw, President of the Association, said that very likely from general reasoning Professor Hébert might safely arrive at the conclusions which he had placed before them, but he himself had taken means to ascertain as nearly as it was practicable at present what was the state of things in that portion of the Channel, and he did not think the result accorded with the intimation which Professor Hébert gave. The President said the first inquiry made was a geological one, by carefully measuring to ascertain on each side of the Channel the outbreak of the beds which lay underneath as accurately as could be done by that process. Having done that and ascertained the thickness of the beds by levels, the results were laid down in the geological map. Of course that was not sufficient to satisfy him, because in a work of that sort they must have more accurate information. It appeared from the geological map that a line between St. Margaret's Bay and Sangatte would be suitable to carry the tunnel through the lower chalk, and to verify this an examination was made across the Channel by dropping from a steamer a weighted instrument in 500 places, the apparatus running with great velocity to the bottom and bringing up chalk where they expected. That was so far in corroboration of what had been done before, and if it were necessary in constructing the tunnel to follow such a circuitous line as Professor Hébert had pointed out, it would never be constructed at all—only in a straight line. People found that the tunnel would be near the water, and thought that any small error would affect its construction; but the deepest point of the Channel in that part was 180 ft., and it was proposed to take the tunnel about 230 ft. or 240 ft. below the bottom. Having had to tunnel below the sea, he knew the difficulties which must be encountered. The current was so strong there that the bottom was washed quite clean, and their experiments showed the absence of any deposit. As to the question of ventilation, it was continually assumed that they would construct a tunnel into which nobody would dare to go. A great difficulty would be the conveyance to and fro of the men and material, but this might be provided for by introducing pneumatic tubes on each side of the channel; and assuming the tunnel to be made, the only necessity was to exhaust the air from the tube by an aperture in the centre of the tunnel. The ventilation would be quite easy. He had been silent about it, because engineers did not usually speak of works until they were executed, and did not care to talk about them; but when the tunnel was accomplished, the way in which it had been made would be patent to everybody. Of course in many of these things they were obliged to return the Scotch verdict of "not

proven;" but it was sufficiently conclusive to his mind to induce him to enter upon the work.

#### THE SEVERN TUNNEL.

In the Mechanical Section, Mr Charles Richardson, C.E., read a paper on "The Severn Tunnel," a work undertaken by the Great Western Railway Company for the purpose of connecting their system at Bristol with that in South Wales in the most advantageous and direct way. The tunnel will be about 4½ miles in length, one-half of which will be under the river Severn. It will connect in the most direct manner the mineral and populous districts of South Wales with Bristol and the South of England, and will doubtless form the express route from London to South Wales. It is, in fact, the missing link in the railway communication of this district. The construction of a bridge across the Severn at this point would be attended with great risk and expense. The bridge should be 100 ft. above high water, and either cross the "Shoots" by one enormous span of 1,300 ft., or otherwise involve the placing of two piers in this swift channel, here a hundred feet deep at high water, and then the central span should be 700 ft. or 800 ft. Mr Richardson proceeded to state that the shaft was begun in March, 1873. The bottom of the shaft was reached and the heading started in December, 1874. As it was decided to drive the heading by the use of the new rock drill, the air pumps and other machinery necessary for this purpose had to be procured and fixed in place. The Mc'Kean drills were set to work at the end of January, 1875. These drills were entirely new to the men, and they were at first prejudiced against their use. However, the air pump happened to break down, and the men had to go to work for a few shifts in the old style: Their eyes were then opened. They appeared to themselves to be doing nothing. Dynamite was also used instead of the old-fashioned blasting powder. The men now worked in three eight-hour shifts, and accomplished from 14 to 18 yards in the week. In conclusion, Mr Richardson observed that probably the whole of that part of the tunnel which will be under the "Shoots" will have to be cut through the hard pennant sandstone. A good, strong and self-supporting rock like this makes a most favourable ground for the construction of the Severn Tunnel.

On the sixth day, in the Chemical Section, among several papers read was one on

#### THE TREATMENT OF SEWAGE.

The report of the Sewage Committee was presented by Professor Corfield, who said that the experiments were very incomplete, owing to the want of funds for the purpose of analysis, but now a gentleman of the Section had supplied and would supply funds indefinitely, so that next year there would be a more detailed report. Some details relative to the sewage farm near Romford were then given, and it was shown that although the total amount of crops produced had been less than in the previous year by 200 tons, yet when they came to consider the amount of land on which it had been produced, the total amount of crops and nitrogen was more. The result was due to two causes—first, the concentration of sewage on fewer acres, and next, to the increasing richness of the soil. The total amount of nitrogen recovered in the crops was estimated at 20,166 lbs. or 31·8 per cent. of the nitrogen supplied, being exactly the mean of the amounts for the two last years.

Mr. J. C. Melliss followed with a paper on the "Treatment of Sewage," his observations having reference principally to the town of Coventry, where there is a daily flow of two million gallons of polluting liquid, being the whole sewage of manufacturing refuse of that town. This noxious matter had, however, been diverted from the river, and so completely purified as to satisfy all parties concerned in the neighbourhood. The effluent water as it passed into the river was clear and bright, and of a high standard of purity, had no susceptible smell, and was almost free from colour. The solid precipitated matter was converted into manure worth about 35s. per ton. The process in use at Coventry required chemicals to the value of £2 12s. 10d. for the purification of one million gallons. Mr. Melliss, in his reply to different observations, said the cost of sewage operations at Coventry was about 5d. or 6d. per head of the population.

In the Anthropological Department, a paper was read by Mr. D. Mackintosh, F.G.S., entitled

#### "ANTHROPOLOGY, SOCIOLOGY, AND NATIONALITY."

The author believes that the inhabitants of different parts of England and Wales differ so much in their physical and mental characteristics, irrespectively of circumstances, that many tribes must have retained their peculiarities since their colonization of the country, by continuing in certain loca-

lities, with little mutual interblending. He believed the Danes had impressed their character on the inhabitants of the north-eastern half of England, and that between the north-east and south-west the difference in the character of the people, irrespectively of circumstances, is so great as to give a semi-nationality to each division—restless activity, ambition, and commercial speculation predominating in the north-east, contentment and leisurely reflection in the south-west. Incidentally, Mr. Mackintosh remarked that the great number of Gaels, descendants of Spanish colonists, and of other races originally from the south-west of Europe, had given a general character to the inhabitants of the south-western half of Ireland which disposed them to be Roman Catholics, while in the north-east a total difference of race had been favourable to the diffusion of Protestantism. It might also be inferred from anthropology, in connection with history, that the inhabitants of south-western Ireland would never themselves succeed in developing to any great extent the natural resources of their country.

In the Economic Science and Statistical Section, a report was brought up on

#### CAPITAL AND LABOUR.

Mr. J. Heywood, the president, was in the chair. The committee stated their sources of information. They considered it impossible to regulate wages according to the cost of living. They considered the relation of wages to the market, and the circumstances that govern the minimum rate. They considered that when a reduction is proposed it should be justified by the production of facts. They considered the proportionate distribution of profits and wages. They made some strong remarks against the principle of uniformity of wages. They considered the power of combination was limited, and might hasten the operation of laws affecting changes, and that the effect of combinations on the progress of productive industry was still more slight. They stated some objectionable rules of Trades Unions. They pronounced the artificial restriction of labour injurious. They recommended the payment by piecework. They deprecated the loss to the ironmasters occasioned by strikes and lock-outs, and, lastly, made some remarks on the diffusion of the knowledge of political economy. The report was generally approved. Sir John Hawkshaw expressed a hope that the Trades Unions would not be able to effect their object of bringing all workmen down to one line of mediocrity by insisting that all men should be paid at the same rate. If they succeeded the effect would be disastrous. It was resolved to circulate the committee's report among Trades Unions and combinations of masters.

A paper was read by Mr. Douglas A. Spalding, of Chepstow, on "Free Trade in Labour." He argued that labour differed from other commodities which could be sold, and might probably be protected against the rivalry of imported workmen. So-called free trade in labour, if carried out on a large scale, would have the effect of rendering progress impossible in the higher sections without benefiting the more backward.

On the seventh day, in the evening, the Corporation gave a second *soirée* to the members of the Association. Several useful papers were read in the different departments. In the Geological Section, at the concluding sitting, Mr. C. E. De Rance read a report on the underground waters in the new red sandstone and Permian formations of England.—Professor A. S. Herschel and Professor G. A. Lebour presented a report on the conductivity of heat of certain rocks; Doctor Bryce gave a report on earthquakes in Scotland, and Professor A. H. Green on the geology of New Zealand. Professor J. Tennant exhibited and read notes of South African diamonds.

At the concluding general meeting, Mr. Griffith, Assistant General Secretary, gave some statistics as to the attendances at the meeting. He said tickets had been issued to 240 old life-members, 36 new life-members, 307 continuing annual members, 93 new annual members, 884 associates and 672 ladies, and £2,397 had been received.

Sir W. Thompson proposed, and Dr. Carpenter seconded, a vote of thanks to the president, Sir J. Hawkshaw, who adjourned the meeting till the 6th September, 1876, at Glasgow.

On Thursday, the eighth day, the meeting of the Association terminated with a series of excursions. About one hundred members of the Association had an excursion to Bowood and Avonbury, under the auspices of the Mayor who invited the company to dinner. Over one hundred members of the Association accepted the invitation of the Mayor and Corporation of Bath to pay a visit to that city, and were conveyed by special train from the Clifton station to the Midland station at Bath. After seeing the sights, hospitalities followed. Another

party of nearly one hundred members visited Wells, and a like number proceeded to Salisbury. Each party was favourably received and well entertained by the leading personages and bodies of these places, and it may be written that the British Association Meeting of 1875 ended well.

#### THE DUBLIN "SWEATING SYSTEM" AND THE SANITARY RECORD.

A SHORT article appeared in last issue of our contemporary the *Sanitary Record*, entitled "The Dangers of Clothes," the authorship of which is credited to a medical gentleman here of large practice and experience, and who as a sanitary reformer is favourably known. We annex the article below; its language is strong, yea, very strong, yet we cannot say that it is uncalled for. There are, however, one or two sentences in the article of our contemporary which call for a few remarks, as the article in question may possibly have the effect of injuring the tailoring trade of Dublin, and leading to the greater impoverishment of a deserving class of men who are not employed by sweaters, or who would not work for "sweating" employers. The article says:—"There is no little risk in connection with the wearing of new clothes in Dublin at least, which must moderate the satisfaction usually attendant upon that experience."

Again, and in allusion to the evidence given before the recent Royal Commission in Dublin:—"To don a new suit of clothes in Dublin is to incur danger of no slight description; and after these revelations we should fancy prudent persons will procure their vestments elsewhere. The facts of clothes being the media of infection are too notorious to permit of this view being regarded as at all sensational."

We entirely subscribe to the last sentence of the above extract, for we have often and often directed attention to the subject. We can, at the same time, inform our contemporary that with a considerable experience of the trade in London, Edinburgh, and Glasgow, gained by a residence in these places, we can safely assert that the sweating system here is no worse than in the former places, nor is it so extensive. There is scarcely a large town in England in which the sweating system does not exist to some extent, and the practices of the London "slop shops" carried on by Jews are notorious.

If the writer of the article in the *Sanitary Record* would visit the homes of the out-working tailors and tailoresses in the East End of London, or the borough of Southwark, on the south side of the Thames, he would find pictures just as bad as those he describes, and in some instances worse. We have ourselves visited several of these homes, from which fever is seldom absent, and found the sweating system in full swing. Women make a large portion of the clothes of the large flashy ready-made clothing shops in the city and East End of London; aye, and several of the West End tailoring establishments give work out to tailors who live in wretched ill-ventilated rooms—in rooms where, perhaps, the younger members of the family are lying ill of small-pox and other zymotic diseases.

If there be a danger in Dublin in connection with new clothes, there is also a danger in London, Glasgow, Edinburgh, and other towns where the out-work system is largely practised. We would be sorry to stigmatise all the tailoring establishments in Dublin as dangerous, when we know it is not a fact. It would be rank injustice to make such a sweeping assertion, or to advise people to

"procure their vestments elsewhere," if elsewhere is meant outside of the country altogether. Until a sanitary reform and proper supervision of workshops is carried out in Dublin, what is needed is caution on the part of those who are giving their orders. The rich and well-to-do in Dublin need run very little risk; but it is the working and industrial classes themselves who are exposed to the greatest danger? The artisan classes purchase mostly ready-made clothes, and a large portion of the labouring population—two-thirds probably of them—are buyers of second-hand clothes in Patrick-street, Mary's-lane, and other places in Dublin. A great quantity of these clothes are shipped over from London, Edinburgh, and Glasgow, and they are not only the cast-off clothes of the living, but of the dead who have died in hospitals or in their own homes of various diseases, or the clothes of criminals who are scattered over the country in her Majesty's gaols. Out of the pawnbroking depôts throughout the kingdom comes forth another large contingent of clothing—"unredeemed pledges,"—and these too generally find their way to the backs of the working population.

It is not the first time we advocated a proper inspection and supervision over stalls, shops, and places called "clothes markets" for the sale and barter of clothes. We could write much upon the "dangers of clothes" and habitations of out-working tailors, and members of other crafts who work, and are obliged to work, in rooms unfit for pigs. In apportioning the blame, let us not forget—while we stigmatise the conduct of "sweating" employers—or pass over in silence, the systematic neglect of our Corporation, who not only allow hundreds of the houses of our city to seethe in filth and rottenness, but actually to fall down through sheer rottenness, killing the unfortunate inmates who are obliged to take shelter in such wretched abodes. This kind of killing is not called murder; but if justice was administered aright, we know of corporations whose members would deserve to hang singly or together for their crimes against God and man.

The following is the article of our contemporary:—

The evidence tendered before the Royal Commission at Dublin, to be found upon another page, reveals a shocking state of matters in the tailoring trade as conducted there. The scene in Alton Locke, where the bridegroom died of typhus caught from infection brought in his wedding coat, would seem to indicate that the late Canon Kingsley had anticipated the revelations brought out by Royal Commission. There is no little risk in connection with the wearing of new clothes in Dublin at least, which must moderate the satisfaction usually attendant upon that experience.

It appears that not only are the hovels in which the miserable working tailors carry on their toil of the worst imaginable description, or rather bad beyond any imagination to conceive, but the commonest precautions to prevent the spread of loathsome contagious disease are neglected. It is not sufficient that the clothes are put together in stinking dens not rarely fever-stricken, but the work goes on uninterrupted by the presence of the most fatal forms of small-pox. The master tailors of Dublin must be strangely oblivious or recklessly disregardful of the facts of infection to permit clothes from such places to pass through their hands and through their premises. If they choose to run such risks themselves, possibly it is no one's business to prevent their doing so; but surely their customers ought to be protected. To don a new suit of clothes in Dublin is to incur danger of no slight description; and after these revelations we should fancy prudent persons will procure their vestments elsewhere. The facts of clothes being the media of infection are too notorious to permit of this view being regarded as at all sensational.

As to the unfortunate workers themselves, it seems that not only are they by their necessities compelled to dwell in the vilest habitations, but the

system of providing them with their work is of the worst character. Enforced idleness alternates with prolonged almost uninterrupted toil; the first half of the week the sweaters give out no work, and in the last three days the working hands have to earn their week's wages. We can realise the condition of matters during the latter half of the week, but how the first half is spent is a matter for speculation. It will scarcely be spent in self-improvement. What is the fate of the children born in these horrible dens, and what sort of men and women these creatures will develop into does not appear very definitely. The medical officer of health states that the condition of matters has led to deterioration of the race, has produced disease, with greater liability to it, and has materially injured the people who have had to exist in the above-described manner. The whole story is an outrage upon our sense of sanitation, and is discreditable to the last extreme to the employers who permit such an iniquitous state of matters to exist.

#### THE LITERATURE OF GOTHIC ARCHITECTURE IN IRELAND.\*

ALTHOUGH a recently-published work, "The Ecclesiastical Architecture of Ireland,"† by Mr. Richard Rolt Brash, is entitled to a notice in our papers, not only for its merits as a literary task, but for the reasons that its author is both a practical architect as well as an archaeologist. Mr. Brash does not enter upon the question of our Round Towers in this work, for reasons stated previously, because he does not believe in their ecclesiastical character. Elsewhere, however, in papers forming the transactions of Irish and Scotch archaeological and antiquarian societies, Mr. Brash enters into the controversy, and canvasses some of the theories put forward on the Christian side. Incidentally to our subject, we will, therefore, further on, take note of these views in contradistinction to the sundry other opinions held by previous writers as already noticed by us.

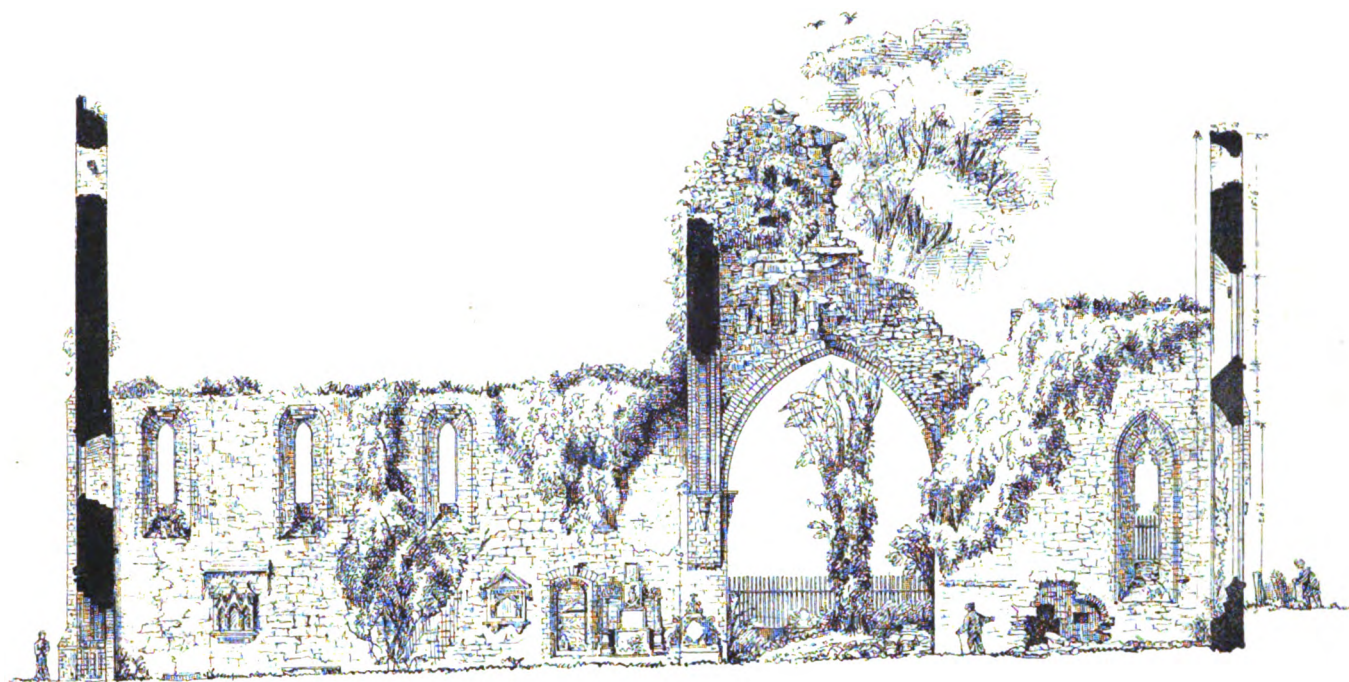
A strong argument on the side of the advocates of the Christian theory of our Round Towers is the absence of mortar in buildings erected previous to our early Christian structures, and, of course, if we grant them that the towers were Christian edifices, a very strong point in their favour would be gained, though in itself others would not prove that the towers were of Christian origin, whatever might have been their subsequent uses. This very mortar or lime-cement question almost forms the starting point of Mr. Brash's volume, and we think it was a well-chosen starting. Irish history, as far as we are aware, or as far as others far more deeply versed than ourselves, does not inform at what period mortar or lime-cement was first used in Ireland. To assume, as Dr. Petrie has assumed, that it was during the era of St. Patrick, is to make an unsupported assertion. We have proved that the use of lime-cement was known to eastern nations thousands of years ago, but a knowledge alone of the architecture of the Romans is sufficient to convince any rational mind that lime-cement was known many hundred years previous to the Christian era. Limestone rock is plentiful in nearly every county in Ireland, but, without quarrying for it, there has always been a large amount of surface limestone lying exposed above the soil.

Writing on this point, Mr. Brash observes: "The Gaedhil in these remote ages had constant intercourse not only with Britain, but also with France and Spain, and that of a peaceable and commercial character. Tacitus, the Roman historian, states that in his day the ports and harbours of Ireland were better known to continental merchants than those of Britain. Under such circumstances they could not have been ignorant of the use of lime-cements, and it is ridiculous to associate their use or introduction with christianity." . . . "It is quite true that the earliest Christian edifices now existing among us are built in mortar, though some of these also are uncemented;

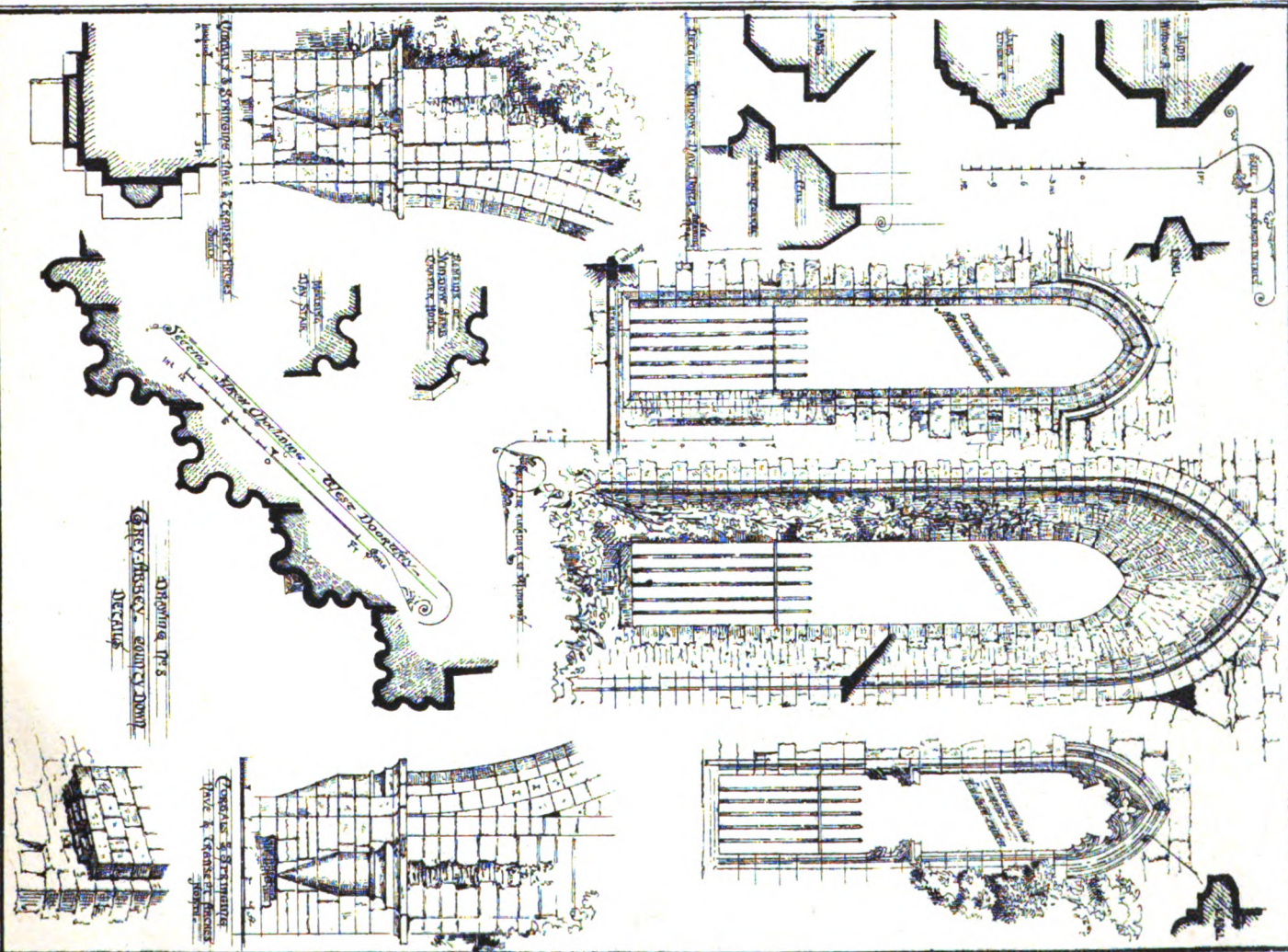
\* See ante.

† Dublin: W. B. Kelly, Grafton-street. London: Simpkin and Co.





Measured and Drawn A.D. 1874 by J. J. Smith. *The Church - Longitudinal Section* © *GREY ABBEY - COUNTY DOW - 1874*







but we have no right to assume that, previous to these, no buildings were constructed by the Pagan Gaedhil bonded with mortar, because such do not now exist. If they had been secular buildings, they would in all probability have gone to ruin; if religious, the christian converts would in all probability destroy them."

As Mr. Brash further remarks, the early Gaelic masons, whatever may have been the doubtfulness of their skill in the use of concrete, they were certainly skilled in the more difficult art of the preparation and fitting of stone, as numerous existing ancient stone structures testify. Speaking of the architecture of the pre-historic and pre-Christian periods in Ireland, Mr. Brash writes:—"This system of Primitive Architecture—as I propose to class it—had its origin far back in the Pagan age, and when the Christian faith was introduced, their oratories and churches were erected by native masons and builders; and thus we find that one of the most ancient structures in our island—the great tumulus of New Grange—contains within its bosom masonry-built chambers domed with stone, of a rude character, it is true, and uncemented, but well bonded substantial work, that has stood the enormous crushing weight of the superincumbent mountain of earth and stones for over 2,500 years at least. Many of the stones in these chambers are sculptured in remarkably good taste."

Of other early structures noticed by Mr. Brash is the Grianon of Aileach, in County Donegal, described also by Dr. Petrie in the Ordnance Survey of Londonderry as one of the most remarkable and important works of its kind ever erected by the ancient Irish. Staigue Fort, on the shores of Kenmare estuary, is another notable structure, as is also the Caher at Ballycarberry, Co. Kerry. The stone forts of the ancient Irish are numerous, and are to be found chiefly in the south and west. The raths are similar defensive structures, and many of them evidence high skill in their construction. Some of these raths are circular in plan, some elliptical, and others rectangular; the latter are usually covered with slates of stone, reaching from wall to wall, or to use Mr. Brash's words—"The square, circular, and elliptical churches are usually domed with courses of stone, each overlapping the preceding one until the apex is reached upon the same principle as the so-called Treasury of Atreus at Mycenæ, and the tombs of the Etrurians." And notice here, the doorways of these structures leading from one chamber to another, are of the same type as the doors of our Round Towers and primitive churches. These raths and cashels alone in the Province of Munster amounted, at the time of the Ordnance Survey, to 10,000 and upwards; and here is incontestible evidence of the extensive practice of stone construction among the early Irish in Pagan times. Mr. Brash gives a measured drawing of the side wall of gateway of a Caher near Enniskeen, County Cork, and the drawing proves the truth of his remark as to the excellence of the masonry, which was dressed and finely jointed, without any spawls.

He concludes his section on the Primitive Architecture of Ireland by observing:—"From what has been adduced, I think we must be prepared to admit that on the introduction of the Christian faith into Ireland, its professors found no difficulty in procuring skilled masons, competent to the erection of the moderate-sized churches then in fashion; and in doing so that they built not according to any imported style, but after the primitive models in use among them for ages long before."

In this opinion we concur, for a study of the examples of early Irish architecture, given in Mr. Wilkinson's work already noticed, as well as in Mr. Brash's, must convince any rational person that the Irish masons, long previous to the mission of St. Patrick, were well skilled in stone-cutting and fitting. And yet we have had a number of native antiquaries, in the present century

as well as in the last, who had the hardihood to assert that they doubted the ability of the Irish to erect stone buildings previous to the twelfth century.

Coming to the Christian period, Mr. Brash's opinion that the structures named oratories, from their diminutive size, appear to have been the earliest religious buildings in this country. These buildings are numerous in the south and west, but some few are scattered through the central districts. They are mostly constructed of cemented masonry of varied character, some exhibiting well-squared and fitted stones. We gave a description of some of these oratories in previous papers, but here is their plan as described by Mr. Brash:—"The oratory is of two distinct types—those with and without over-crofts or upper chambers. All are rectangular on plan, and most of them have a curious feature—namely, the prolongation of the side walls beyond either gable, to the extent of from 18 in. to 2 ft. This extension is sometimes the full thickness of the wall, on the face, sometimes less, and is also carried up the gables on a line with the stone roof. The masonry of these *antæ* is generally of a very superior class, the stones being neatly squared and fitted, no matter what the finish of the walling may be. The doorway is usually in the west, and, when otherwise, it will be found to be a later insertion, as at St. Columb's, Kells, and St. Declan's, Ardmore. These doors are a very remarkable feature; they are built of massive blocks, usually the full thickness of the wall, the jambs inclining inwards towards the top, and covered by a flat massive slab, as a lintel, also generally in one stone; in some cases the entire doorway is formed of three stones, as at St. Mollagga's."

"We find but one window-ope in these structures, and that invariably in the east gable, and of very small dimensions. It is either angular or semicircular-headed, the latter being the more prevalent form. In all cases the jambs incline as in the door opes. Inwardly they have wide splays, both on jambs and arches, the sill being also splayed, and sometimes stepped as in the example at Friar's Island. The roof coverings appear to have been of stone: certainly we have several examples of such stone-constructed coverings existing to this day, while the ground plans and masonic construction of numerous others indicate a similar treatment, though these features no longer exist. In their execution we find two modes of forming the roof—the first and simplest are high pitched, never less than an equilateral triangle in section, often steeper; they are also triangular on the soffits, the internal and external lines being parallel. They possess no principle of the arch, being built of rectangular slabs in over-laid courses of from 4 in. to 9 in. in height, and from 12 in. to 3 ft. in length, dressed both inside and outside to the rake of the roof, laid, breaking joint, and at such an angle as to throw off the water, the top being covered by a solid angular capping stone. These roofs are constructed with undoubted forethought and skill; several which I have examined, after the lapse of 1,000 or 1,200 years, are still staunch and sound. This was the mode of construction used in St. Molua's Oratory, Friar's Island, and in St. MacDara's, County Galway."

In the opinion of Mr. Brash, this oratory on Friar's Island, with a little care would still stand another 500 years. The oratory at Gallarus, in Kerry, he thinks, with ordinary care may yet last another 1,000 years for aught it has worn in the past. The great antiquity of the structure, we hold with him, is undeniable; and Dr. Petrie admits that it may possibly challenge the Round Towers as to point of antiquity. If so, from the Pagan side of the controversy, the oratory of Gallarus must be old indeed, if it does not possibly belong to a Christian race in Ireland, previous to the mission of St. Patrick himself. The oratory near the old church of Kilmalkedar, in the same locality, is another curious and perhaps more ancient one than

the preceding. It is built of uncemented masonry, the stones being flat and close-jointed. The masons who built these structures were certainly no amateurs in their art. Of Gallarus, Mr. Brash writes:—"The masons who designed and built this structure—in the section adopted, the material selected, and the character of the workmanship—shewed an amount of practical knowledge, skill, and experience that must have been the result of long and extensive practice." To this statement we are obliged to subscribe. And now, while on the subject of these oratories, it will not be amiss to take note, once more, of the early pointed form as developed in these ancient structures. Externally, they show in their section an undoubted pointed or "Gothic" arch, that at Kilmalkedar, while similar on the outside as that at Gallarus, shows internally an ogee section instead of a regular pointed one.

Though the ancient domestic edifices of the Irish were undoubtedly of wood or earth, we have evidence that they constructed habitations, granaries, or store-houses of stone. These old stone store-houses and habitations are known by name as *clochans*, a name retained by antiquaries in describing them. They are mostly circular on plan, from 10 to 12 ft. in diameter in clear of the walls which range from 4 to 8 ft. in thickness at ground level. In section they are nearly of beehive form, the stones overlapped each other, the wall diminishing in thickness to the top. The doorway is of a type already described, with inclined jambs and flat-headed; window-opes are not usual. Some of these curious structures are circular on plan inside and outside, some are oval, others quadrant; and there are examples which are circular or oval externally, while internally they are square or rectangular. Mr. Brash says his object in being particular in describing these curious and other early structures was "to shew the source from whence the early Irish churches had the simple and massive architecture of her religious buildings. The *clochan* was evidently the original type, and the curve-sectioned structures at Gallarus the transition stage to the rectangular and vertical walled oratory."

And we will add, from these early structures we have been noticing—including the Round Towers—were developed the pointed arch and the early Gothic style, as practised in Ireland. We will have, however, something more to say on this point hereafter.

#### THE PATENT STONE BRICK.

It is, we believe, known to very few comparatively, that for some months past a manufactory has been established, and is in operation, for the manufacture, on an extensive scale, of stone bricks, according to Bodmer's patent. The works referred to are situated at Harold's Cross Bridge—namely, between Harold's Cross-road and Portobello Barracks, where many thousands of these beautifully-moulded bricks can be seen. The machinery for the making of these bricks is of a most ingenious and complete character; perfect contrivances are provided for the most intimate admixture of the materials of which the bricks are composed, and the materials are afterwards subjected to enormous hydraulic pressure in the dies where the bricks are moulded and turned out. A particular feature about these bricks is that, being so evenly and specially made, walls built of them will not require to be plastered, thus effecting in this respect alone a great saving, and with them the mason ought to be able to do a third more work, as the most inexperienced hand can lay them rapidly. The manufactory has been laid out on the same plan as Bodmer's works in London, with some improvements. The Harold's Cross Company have purchased the patent rights for the entire of this country, and are now, we understand, open to grant licenses for the manufacture of the same kind of bricks in any place in Ireland where same may be required. For particulars see our advertising columns.

# THE ROYAL HISTORICAL AND ARCHÆOLOGICAL ASSOCIATION OF IRELAND.

THE quarterly meeting of this association was held at Butler House, Kilkenny, on Wednesday, the 6th inst.

MAURICE LENIHAN, J.P., Fellow, in the chair.

The following were elected as members:—  
Rev. S. B. White Venables; William Geale;  
J. G. Glenny, A.B., C.E.

## DONATIONS.

The publications and journals of various learned societies were presented, including the conclusion of "Lepidarium Septentrionale," a work issued by the Society of Antiquaries of Newcastle-upon-Tyne, being a full and exhaustive account of all monuments of Roman rule existing in the north of England; and several volumes of the publications of the Royal Society of Northern Antiquaries, Copenhagen.

Mr. Henry Norman sent a hand-sketch ground plan of the remains of an ancient monastic house situated between Rathkeale and Shanagolden. The plan was accompanied by description.

Mr. P. T. Coogan presented an ancient map of Dublin bearing the following title: "Dublin as it was in 1610. War and Union may reduce it thus again."

The Rev. James Graves presented a bronze thumb-ring, which had been found near Dunbrody Abbey, County Wexford; it had been given to him by Miss Long, daughter of the late Dr. Long, of Arthurstown, County Wexford, who had exhibited it at a former meeting of the association.

Mr. S. Atkins, of Whiteford, County Wexford, presented an English groat of Elizabeth, dated 1659, which had been dug up on his land.

The Rev. James Graves presented an impression of the seal of the Convent of Eremites, of Ballinrobe, which had been communicated to him by the late Albert Way, F.S.A. The original was in the possession of Holbeach Bloxam, F.S.A.

## GOLD ARMLET FOUND AT CLARAGH.

Mr. J. G. Robertson exhibited a very fine specimen of these massive gold objects generally supposed to have been armlets, but by some believed to have been used as *fibulae* or brooches to fasten the cloak. The antique had been discovered by a farmer named Walter Costelloe, of Claragh, in this county, while sinking for the foundation of a house in his haggard. It lay in a cleft between two rocks, where it must evidently have been hidden. In size it would fit on a woman's wrist, the opening between the cup-shaped terminations being sufficient to enable the arm above the wrist to pass through, whilst it remained safely encircling the wrist when allowed to fall lower down. The gold was of a rich yellow, the surface smooth and highly finished, the cups quite perfect, and exhibiting a peculiar raised rim around their edges, but without ornamentation of any kind. Its weight was exactly 8 oz. avoirdupois.

The Rev. James Graves observed that they had in their museum examples of the "bangles" manufactured at Manchester for the South African trade, of nearly the same form. He said that the association were much indebted to Mr. Costelloe for allowing this splendid example of Irish primitive goldsmiths' work to be exhibited. He understood its intrinsic value was over thirty pounds, and he hoped that more could be obtained for its owner, in consideration of its antiquarian value. It was not generally known that the Government was willing to give the full value of all such objects, in order to secure them for the national collection in the Royal Irish Academy; and it was most important that it should be generally known that there was no wish on the part of the authorities to seize on such objects as "treasure trove." It was too often the case that poor persons secretly disposed of gold and silver antiquities from such fear, getting only a fraction of their value from dealers or pedlars.

Mr. Robertson said he had written to the Royal Irish Academy, and hoped that the antique would be secured for the museum of that body.

## OGHAM STONE.

Dr. Martin presented a very fine Ogham stone, the discovery of which he had reported to the last meeting, accompanied by the following observations:—

"I have placed in the museum an Ogham stone found in the townland of Kilbeg, Parish of Kilbarry Meaden, Co. Waterford. It was dug up on the farm, the owner of which kindly gave it to me. I have sent an accurate copy of the letter to Mr. Brash, whose reading of it is *Bifodon Mucoi Atar*, the name being similar to that found on another stone in Cork—*Bifator*."

Dr. Martin also sent notes of a further ramble in churchyards, as follows:—

"In the churchyard of Fiddown, Co. Kilkenny, there are three stones lying against the west wall of the old chancel, now used as a mortuary chapel. The first on the right hand is nearly defaced, having long formed part of the flooring of the centre aisle of the old church; but I have made out part of a legend to be *Edmundus Daton, generosus de Cloncurry*—one of the family who previous to 1641 held the adjoining townland of Kildalton, now Bessborough. The Daltons were a powerful Anglo-Norman family, against whom and their compeers the Grants, the citizens of Waterford were authorised by charter to ride forth in armed array. The stone adjoining this on the right side I have been unable to decipher. That on the left side is that which covered the grave of one Foulk Denn, who formerly resided in the old castle of Fiddown, which once stood about 100 yards north-west of the present bridge-house, but was pulled down about 60 years ago. The legend is, *Hæc sunt monumenta D. Falcis Den filii secundi D. Den, et Catharine Geraldina conjugis quorum animabus Deus propitius sit*, 1618. The Dens were an old and wealthy family in the County Kilkenny, adherents of the great Ormonde Lords. The notes to the paper on the "Gaul Bank Family," written for this journal by Dr. O'Donovan, show that one of that family was married to Elise Denne. The inscription will show the connexion between her and Foulk Den, as the property held by both was part of the same district of country. As a curious evidence of how soon history becomes myth, I may relate that talking to an old man in the neighbourhood about the tomb, he at once exclaimed—'Oh! yes, Foulke was a great robber, and the old castle of Fiddown was his den.'"

## ANOTHER OGHAM DISCOVERY.

Mr. R. Langrishe laid before the meeting a sketch of a fragment of a fine Ogham stone, now unfortunately broken, which he had found built into the angle of a stable at Hacketstown Glebe, Co. Carlow. He said he hoped to be able to procure the stone for the association's collection of such objects, and would search for the other fragments, so as to complete the inscription, if possible.

The following papers were communicated:—"Collectanea Archæologia about Ballyragget and its neighbourhood, Part I.," by Mr. P. J. Cogan. "Notes on a Bronze Bell in the possession of Mr. W. Glenny," and on some "Ancient Sculptured Stones from an old church in Castle Archdale demesne, and from White Island, Lough Erne."

The meeting then adjourned.

## HANDICRAFT AND HANDICRAFT TOOLS.

(Continued from page 269.)

THAT embroidery and needlework of various kinds were executed, shows that needles were well known. Some of their needles are in the case marked 6496-7 (shelf 3), of the first Egyptian room of the British Museum; they are of bronze, with eyes like ours, and very similar to the bone ones of the geologically pre-historic times. Embroidery seems in all ages to have been a favourite occupation and a valued production. Indeed, it is not an unusual domestic heirloom. If there are any here possessed of what are called "samplers" worked by some of the generations preceding that of their great grandmothers, they may

find, carefully fastened into the sampler, the needle with which the embroidery had been executed. A similar procedure may have been adopted in these earlier Egyptian times, hence the number of bronze needles.

The accounts of the Tabernacle in the Book of Exodus (chaps. xxvi. and xxvii.) amply confirm the skill of these people in needlework embroidery. The same account shows that there was a generally diffused knowledge of wire (Exodus xxxix., v. 8).\*

There is reason to conclude that the gold, when cut into strips, was afterwards drawn into round wire. The ark was overlaid with pure gold, and gold could be cast (Exodus xxv., v. 11 and 12). They made fringes (Numbers xv., v. 88), hence they made cords, also ropes of leathern thongs, as represented in sculpture; one drawing of this latter process is very clear. The leathern hides are cut circularly, so as to obtain the greatest length, and a man is represented as sitting on a heap of these arranging them for a fellow workman, who travels backwards, and twists the thongs by a contrivance which may be verbally described. (Wilkinson's "Ancient Egypt," vol. iii., p. 144, No. 359; Rossellini, plate lxx., fig. R.)

A cord passes round the body above the hips; this cord seems to be fastened to an eye in a metal tube. Within the tube, somewhat after the manner in which bands of hay are made in rural districts, a piece of wood can rotate. This piece of wood is represented as having a hook at one end, to which is attached the cut leather thong. The man with the band round his waist twists a combination of these leather thongs, which are fed on by another man who sits upon the floor. What would immediately take the eye of a mechanic is the attachment of a heavy cannon-ball-like weight to an arm, as a similar weight is attached to the arm of the "Samson" by which railway carriages are coupled. In the Egyptian instance this weight seems attached to the hooked rod, and was probably an early attempt to accomplish that for which a fly-wheel is now employed.

That an extensive knowledge of weaving existed, the mummy cloths show; but we are not so familiar with netting as done in these early times. Netting-needles, however, are figured, and these are so like those now in use, that had the paintings not been so ancient it might with truth have been thought the originals were sent from England. There are two shapes figured on this diagram, and those who now net can perhaps testify to the handling of some of the descendants of these netting-needles—the family likeness is so preserved. (Wilkinson's "Ancient Egypt," vol. iii., p. 140, No. 358.)

In former days, as now, the process of calendering or ironing woven materials for the purpose of producing a smooth surface, was generally practised. The drawings which these ancient paintings supply of what was probably a smoothing tool, or otherwise a plane for calendering (and from which our laundresses' irons are descended), is of the shape sketched (Wilkinson's "Ancient Egypt," vol. iii., p. 140, No. 358):—

(1) seems to be a projection for the thumb, and on the opposite side there was doubtless another for the fingers.

(2) seems to be a place on which to rest the wrist.

(3) fits into the hollow of the hand.

(4) seems to have been sloped away so that the person calendering or smoothing the cloth could see the progress of the tool. The instrument was probably made of some of the hard woods.

These ancient Egyptians were well versed in tin as an alloy of copper; indeed the Arabic word at the present day, "hasdeer," and the expression used by Homer when he describes the raised work on shields, as in that of Achilles (Hom. Il. 18, lines 565-574), and other parts of the armour (Book 18, lines 612-474), is the same as that given to these islands by the early Phœnicians, "Kassi-

\* "And they did beat the gold into thin plates, and cut it into wires to work it into the blue, and into the purple, and into the scarlet, and into the fine linen, with cunning work."



terides." The Greek word for tin is "kassiteros."

It would be out of place to bring before you many interesting particulars of this character, and thus much has been said of tin, because it is that with which copper is alloyed to form "bronze"—if the alloy is zinc, then what is truly called brass is the result. The Egyptians could also "damaskeen," or inlay bronze with gold. The bronze implement seems to have been carved with a sharp tool, and cut square down, so that the narrow lines might be filled with the cut gold stripes previously referred to, and although occasionally perhaps soldered in, yet the engraving was either so truly square or even undercut that if beaten in with hammers it was fixed; indeed some of the hieroglyphics are cut to the depth of two inches, the edges and all the most minute parts of the intaglio presenting marvellous sharpness and accuracy, and this too on a granite stone which can turn the edge of some of our best modern steel tools. They could also solder metals in the reign of Tothmes III., 1490 B.C. The Egyptians used beams and scales like ours, and there was a contrivance which served the purpose of the pointer on our beam, and indicated when there was an equality of weights. (Wilkinson, vol. ii., p. 10, No. 78; Rosellini, plates 41 and 411.)

The island of Naxos, from whence the best emery is brought, was not far from the mouth of the Nile, and we need not doubt that they knew the value of emery as much as we do.

One more tool, and then we must pass on to some of the diagrams on the wall. We are all familiar with the ordinary steel for sharpening knives, which our butchers hang from their girdles, and often use more from habit than necessity. Similar steels may be noticed as hanging from the girdles of the butchers sculptured on the tombs of Thebes. (Wilkinson, vol. ii., p. 875, No. 278.)

In addition to the articles carried by the Egyptian cabinetmakers in their "bass," as enumerated in a previous part of this lecture, there was a "bevil-square." (Wilkinson's "Ancient Egypt," vol. iii., page 174, fig. e, No. 364; and Rosellini, plate xlv., No. 8.)

This "bevil-square" deserves more than a passing notice. In my hand is a bevil-square, kindly lent for these lectures by Messrs. Fenn, tool-makers, Railway Approach, London Bridge. I understand they obtained the original from France fifteen years ago. Let anyone compare this with the diagram on the wall from Rosellini, and he will satisfy himself of the identity of the two. It is to be regretted that a square, combining so many useful peculiarities, has not (so far as I know) ever been introduced into our English workshops. It is certainly found in a French and Austrian cabinetmaker's collection. Before these lectures close, we shall have on the table one from an Austrian workshop of a very simple construction—indeed, made exactly as this one on the diagram representing an Egyptian veneering, and a "bevil-square" placed against the wall of his workshop.

Perhaps no tool in the Egyptian cabinetmaker's basket will be looked at with more curiosity and respect than his drill apparatus. It is unmistakable and clearly figured on this diagram of a cabinetmaker drilling the framework of a chair for weaving in the seat. In all respects (save one) it is the common bow-drill of the present day. The respect in which it differs is the mode of producing the pressure on the drill spindle. Our Egyptian artisan has his hand on the top of the drill spindle, pressing it forward much as we now press forward one of the neat Archimedean drills. The other hand works the bow. Now in the drawing there is sketched a large block on which the hand rests, and in which the drill spindle rotates. This is the palm-nut—it is the fruit of the Heban Palm; which, as soon as it ripens, becomes exceedingly hard, and capable of receiving a very high polish. It was very naturally used in the early times of which we are speaking, and travellers testify that in the rural districts of Egypt

the carpenters even in these days are using the nut for the same purpose. This may be the proper place in which to state that breast plates of bronze, similar to those we use in drilling, have also been found in the tombs of Egypt.

Now that attention is directed to the workman drilling a chair, it cannot be out of our course to ask you to observe how well they must have formed these chairs. There are no cross rails to bind the legs. The whole framework is as dependent upon the joints of the seat as is the case in our very best made chairs. Other drawings (not shown here) leave us in no doubt as to the object of the drilling the seat bars. These seats were formed of ingeniously interlaced work of string, and there are traces of some done very artistically, as we sometimes see in the higher class of chairs with our interlaced cane seats. The photographs on the walls of the rooms are very clear as to both the pattern and manner of interlacing.

These chairmakers in the time of Joseph and the Israelites in Egypt not only constructed well-made lattice-worked seated chairs without leg-bars, but they also made them of elegant forms. Naturally the legs of the chair were formed after those of animals. They did nothing by halves; hence they did not take two legs from the animal and leave two behind, but they put the four animal's legs on the chair, the two hind legs behind, and the two fore legs in front. They also made camp-stools similar to ours, and low chairs with variously-fashioned backs. (See in first Egyptian room in British Museum, cases 14-19; also the photographs in this room.)

It can hardly be thought that the skill in designing and constructing not only chairs, but cabinets, tables, and other articles of general household furniture, was not equal to that of designing the best and finest of joints. Such was the case, for dovetailing on which we now rely, and which has at one time or other called forth many contrivances for accomplishing it by machinery, was known and practised by the ancient Egyptians. The keying of stones in masonry in Egypt is frequently with a wooden dovetail key. They also understood our plan of tonguing, in order that two planks might be joined edgewise. In one respect their mode of tonguing was even better than ours. They inserted the tongues as we do, and with glue. Then when the planks were thus united, they seem to have bored pin holes through planks and tongues, and driven into these trenails, as now used in boat-building chiefly, although not unused in good cabinet work.

(To be continued.)

### THE SOCIAL SCIENCE CONGRESS AT BRIGHTON.

THE Social Science Congress was opened on the 6th inst., under favourable auspices. In the morning, in connexion, was the opening of the Sanitary and Educational Exhibition, with an address from Sir J. Cordy Burrows, the Mayor (Mr. Bridgen) presiding.

The Right Hon. Lord Aberdare, the President for the year, delivered in the evening an address occupying two hours, taking for his subject "Crime," confining himself solely to the one subject, unlike his predecessor, who generally gave a review of prominent questions occupying public attention. Taken in connection with sanitary reform, the address of Lord Aberdare on the state of crime in the British empire, was a valuable one, as it afforded statistics showing on the whole, for many years, that there is a decrease in crime. He went into elaborate statistics showing that education and crime were connected, and to prove that the Education Acts had done a great deal of good. Upon these facts he founded a plea for compulsion. Next he considered the Poor Law, and trusted that recent warnings would prevent the lax administration which invariably increased crime. To sanitary improvements he also attributed much good. Passing to the people who committed crime, he charged Irishmen, the least criminal at home, with being the most criminal in England and Scotland. Whence did this arise? The only explanation he could offer was that, even more than the migrating Englishman or Scotchman, the Irishman suffered

from being removed from his home and the many safeguards, social and religious, which there environed him. It was a necessity of our national position that a large part of our population should forsake the shelter of their homes. They could not avoid temptation; they must learn to face and to conquer it, or to perish. And, such being the law of our existence, it followed that a good education, in the largest sense of the word, was at once the best instrument of success in life and the strongest security against vice and crime. While neglecting no precaution while attacking the great citadel of crime on every side and with every weapon, our most assured hope of success must ever rest upon the increased morality and the manly intelligence of the people. The moral he would draw from the history of the past and the picture of the present was not that we should contentedly and lazily acquiesce in the present state of things, as being about the best which human means and human effort could attain, but that, gathering confidence from past experience, we should extend and enlarge those direct agencies which had been successfully tried, and enter resolutely upon those new and indirect paths which were opening around us with so fair a promise of good. We had received from those who immediately preceded us a world much better than they found it; let it not be our fault if we did not transmit it to our successors improved, purified, and invigorated.

The Speaker of the House of Commons moved a vote of thanks to Lord Aberdare, and remarked that he had adopted the sound course of adhering to one subject, and dealing with it in a most exhaustive manner.

The President briefly replied.

On the second day Sir Edward S. Creasy, late Chief Justice of Ceylon, opened the proceedings with an address upon "Jurisprudence and International Law," in the course of which he entered into an elaborate history of principles, and contended, with regard to the latter subject, that nations ought in time of peace to do each other as much good as possible, and in time of war as little harm without prejudice to their own true interests. At the conclusion of this address, the members dispersed among the three sections, which were opened shortly after eleven o'clock—"Jurisprudence and the Amendment of the Law," with a sub-section, in which papers were read on the subject of the "Repression of Crime," "Education," and "Health."

Sir Charles Reed presided over the Education Section, in which Mr. Reginald Walpole, a member of a provincial school board, read a paper on the question, "How far can the system of primary education in the country be advanced and extended?" In his opinion restrictive legislation had hitherto failed to achieve its object. Was it, therefore, permissible further to extend it? Mr. Walpole gave a qualified answer in the affirmative. He would have a uniform law for the country, which, besides making education compulsory up till ten years of age, would increase the number of attendances in the lowest grade of infant schools.

Captain Craigie dealt with the subject of local taxation in the Trade and Economy Section, and in the course of his paper said, for administrative reasons, the State must in certain cases employ the agency of local authorities, and, as a consequence, he maintained the propriety of imperial subvention for particular objects—these being, in fact, payments to localities for services rendered to the nation. He urged that, in regard to such duties as the repression of crime by police and prisons, the existing subsidies by no means represented the full interest and liability of the State, while very great gain would accrue from the direct assumption of the control and payment of such matters by the central Government.

In the Repression of Crime Department, Lieut.-Colonel Du Cane advocated the continuance of capital punishment in extreme cases, and quoted in support of his argument the opinion of an Australian convict, "that a bit of rope was a good check on a man's temper." He spoke strongly in favour of the separate system and of industrial labour being pursued in prisons, but he thought the trades should be so varied that they would not interfere with any one particular branch of industry. Sir Walter Crofton followed with another paper, and Sergeant Cox suggested that in cases of felony power should be given to a judge to award a period of imprisonment between two and five years. Lord Aberdare believed that the system of supervision had worked most beneficially, though in large towns like London it must be only partially operative. He thought that the diminution of crime which had taken place of late years was in a large measure due to cutting off the supply of criminals by means of our reformatories and industrial schools. Miss Amelia Lewis, referring to crime among females, thought that if women were trained to habits of self-respect there would be far less danger of their pursuing an evil

course than there was now. She also thought that a modified system of supervision might be applied to them with beneficial results.

In the Health Department papers were read by Mr. H. H. Collins and Mr. William Bessie, C.E., on the ill-construction and want of sanitary provisions which existed in the dwellings of the upper and middle classes, and the best methods which should be adopted to remedy and rectify the same.

This concluded the programme for the day, but in the evening a *soiree* and *conversazione* was given by the Mayor of Brighton under the Dome, which was attended by most of the members of the association.

On the third day, Mr. Grant Duff, M.P., President of the Economy and Trade Section, dealt with the subject of the present condition and immediate prospects of our commercial treaties.

In the other sections papers were read on International Law and Education, and interesting discussions took place.

In the evening, a public meeting, presided over by the Mayor of Brighton, was held in the Dome of the Pavilion for the purpose of explaining the objects of the Social Science Association to working men. A conference, numerously attended by members of the association, was also held at the Friends' Meeting House, for the purpose of discussing the temperance question, and devising means to counteract the evils of intemperance.

On the fourth day—Saturday—none of the sections met, but Mr. Hastings, the president of the council, following the custom established by Lord Brougham, reviewed at considerable length the salient points in the proceedings of the council during the past year, expressed regret at the Government having declined to appoint a Royal Commission on the water supply generally throughout the country, because nothing less than a most searching inquiry could solve the difficulties which surrounded this subject. The council had done all in its power to support the Friendly Societies Bill, but they regretted that the opportunity of increasing thrift among the working classes by making their savings absolutely sure had not been embraced. Nothing short of a compulsory audit of the accounts of a large number of the societies which received the savings of working men, which audit must also be independent, could protect them from the effects of their own fallibility in such matters. Mr. Hastings then took a retrospective glance at the history of the association, and briefly referred to the principal movements which it had been connected with. He claimed credit for its being instrumental in obtaining the appointment of the Indian Sanitary Commission and the Schools Inquiry Commission, as well as of originating the "Fusion of Law and Equity" movement.

Mr. Ryall, general secretary, announced that the prizes of £200 and £100, given by his Excellency Senor Don Arturo de Marckartu for the best essays on a code of International Law, had been won by Mr. Alvan Pulling Sprague, of the United States bar, and by Mr. Paul Lacombe, an advocate at the French bar. Both these gentlemen were loudly cheered on receiving their cheques from Lord Aberdare, who observed that he would not have been sorry if one of the prizes had been won by an Englishman, but as none had had the ability to win one he was glad to see the first prize taken by a country so closely allied to us as America, and that the next was gained by our nearer neighbour long opposed to us in war, but now closely connected with us by the bonds of peace.

During the day there were excursions to Arundel, Hastings, and Lewes. In the evening, Mr. George Godwin delivered a lecture on Sanitary Architecture and Appliances.

On Monday last, the fifth day of the Congress, an interesting paper was read by Dr. Richardson, president of the Health Department, on "Our Sanitary Arrangements." He contended that civilisation, unaided by special scientific knowledge, reduces disease and lessens mortality, and that the hope of this being still more effected by systematic scientific art was fully justified. In order to illustrate this point he drew a sketch of a model city, the sanitary arrangements of which were to be so perfect that the rate of mortality would not exceed eight in a thousand annually among the first generation, and five per thousand afterwards. All the houses in Dr. Richardson's scheme are to be based on subways, and there are to be no underground cellars or kitchens. Smoking and drinking were to disappear, and as the two practices were indeed original exchanges of social degradations between the civilised man and the savage—the savage getting very much the worst of the bargain—so the practices are to disappear together. Various other sanitary reforms were to be effected with regard to water supply, hospitals, drainage, &c. Dr. Richardson, of course, did not presume for a moment that a city of this description could ever be built here,

but his lecture tended to show that by effecting great sanitary reforms we may at least do much to preserve longevity.

Lord Aberdare, who presided, took occasion to correct a statement he had made with reference to the course taken by the Earl of Shaftesbury on the Artisans' Dwellings Bill. His lordship had never opposed the Act, but, in pointing out the difficulties attendant upon its operation, remarked that great care would have to be taken in the removal of the very poor from overcrowded districts.

Subsequently, in the Health Department, Mr. W. Rendle read a paper on the question whether the water supply should be left in the hands of the local authorities. He said it must be taken out of the hands of the trading companies altogether, a monopoly in a first necessity of life being a very odious thing. A stop should at once be put to the companies raising their charges by means which appear to be improper, if not unlawful. In the same section the other papers read were by Dr. Child on the Dwellings of Labourers in country districts; Mr. F. S. Powell and Mr. C. F. Chambers on Recent Sanitary Legislation; and by Dr. Taaffe on the Public Health Act.

### CIVIC LYRICS.—No. XCV.

#### "TUMBLING DOWN."

##### "Dangerous Structures."

In street and lane, in alley and court,  
Both in and without the town,  
Houses are many that need support,  
And daily they're tumbling down!

"Dangerous structures," in legal phrase,  
Top-heavy, they rumble and frown;  
They've seen, like the city, better days,  
But now they are tumbling down!

The "City Fathers" won't vote a crutch  
To prop one house of renown,  
And demolition would cost too much,  
In view of its tumbling down!

What boots the life of a working man?—  
Swift death will his sorrows drown!  
A house is a house, and, if it can,  
Let it stand—till it tumbles down!

This is Corporate logic—profound,  
In Ireland, under the Crown,  
With law despised, and dead on the ground  
Under houses that tumbled down!

CIVIL

### AN ENLIGHTENING LETTER.

WE have been requested to give place to the following document, a copy of which reached us as we were going to press. It must speak for itself:—

To Edward Fottrell, Esq., J.P., Chairman of the Alliance and Dublin Consumers' Gas Company.

SIR,—Acting on the permission given by you at the conclusion of your address to the shareholders of the Gas Company at their half-yearly meeting, held on the 31st of March last, I had the honour of addressing a letter to you disputing some of the conclusions in your published address, and in that letter were enclosed copies of published letters on certain doubtful transactions of your Company.

In those letters I explained a fraud on the public lighting, amounting for one quarter to £882 8s. 6d., the cost of four and a-quarter millions cubic feet of gas that never was consumed in the public lamps during that period, and that I frequently exposed that fraud in as public a manner as opportunity admitted.

To the surprise of many, contradiction to the statements made in those letters has never been attempted, nor was I ever called upon to account for the publication of them by those whose duty should be to maintain the company's honour and good name, thus giving a tacit permission to the readers of them to believe that there was a something under the surface of the seeming prosperity of your company's dealings that shrunk from enquiry. Perhaps, secure in their surroundings, they find it safer to affect to despise those accusations, or

It may be human nature; but, if so,  
Oh! isn't human nature low?

One of those letters revealed the fact of a London gas company having been selling, for some time prior to the publication of it, 16-candle gas for 8s. per 1,000, coals being dearer in London than in Dublin.

As it appears in *Saunders's News-Letter* of the 20th of September last, nearly one-half of the directors' report is devoted to the announcement of a reduction in the price of gas of 4d. per 1,000 after the Christmas quarter—a mountain bringing forth a mouse! The announcement is thus introduced:—"Notwithstanding that the statutory obligations of this company impose a high standard quality of gas, thereby rendering necessary the use of a large percentage of expensive Cannel, which considerably increases the cost of production." Without further quoting the "rigmorole" composing the almost interminable sentence of which the foregoing is a minute portion, that dubious section of the report must be taken as intended to convey—that the high cost of Cannel coal, used at present in the manufacture of gas, is the cause of the contemplated reduction in its price being so very small, and so slow in coming.

That this reason will appear a little too hackneyed is evident when the consumers reflect, that this was the chief reason given for seeking your last Act of Parliament, under which the standard quality of the gas was reduced from 20 to 16-candle, it being then asserted that the 16-candle gas could be manufactured without the aid of Cannel. The repetition of such a reason now, under existing circumstances, seems intended as mockery or profound humbug, but is, in reality, only stupidity of the lowest type.

In the report of the late meeting of the shareholders, as given in the *Irish Times* of the 1st inst., there appears a sickening amount of "mutual admiration slang." One gentleman, a member of the Dublin Corporation, who had from me copies of my published letters exposing the fraud on the public lights, when advocating that your suggestion of increasing the salary of the Secretary to £1,000 per annum should be carried out, is reported to have said that, when in the service of the Corporation, he (the secretary) "had a salary of £600 a-year, and he made £200 additional by his private practice."

This mention of "his private practice" is very like a sneer at the "Tinker's Budget" and the "Botched City Lanterns." If it was intended as such, I must say that the bad taste that prompted the utterance of it can only be equalled by the barefaced falsehood of the statement.

To your secretary's ingenuity is due the merit of raising your company from a state of bankruptcy to that of apparent affluence; but the notion of increasing the salaries of your officials, while you are charging 5s. 4d. per 1,000 for the same gas that a London company has been selling this long time at 8s. per 1,000, shows a reckless disregard of the maxim—"Be just before you are generous," and would fully authorise this portion of your entertainment on the 31st September being described in its "carte" as *C'est du taureau Irlandais saupoudré de pierre de Blarney*.—Yours, &c., JAMES KIRBY.

41 Cuffe-st., Oct. 18th, 1875.

HOW TO MAKE THE MOST OF OUR FOOD.—It may truly be regarded as nothing short of a national calamity that the art of cookery is so little understood and appreciated in this country. The chief cause of this lamentable ignorance is that no great effort on a comprehensive scale has been made to educate the people into a realisation of the grievous loss they sustain through their ignorance in this respect, and at the same time to carry into their homes the knowledge that is wanting. What would seem to be wanted is an inexpensive means of carrying into every household throughout the land a practical knowledge of how to make the most of every article of food. And we are hopeful that these means are at length forthcoming in a form that will command success. The publishers of that great educational encyclopedia, "The Popular Educator," have determined to issue the most thorough and complete compendium of cookery ever attempted, in the belief that such a work, being made the most comprehensive as well as (having regard to its contents) the cheapest ever issued, will find its way into the hands of the many hundreds of thousands whom it so closely concerns. At all events, the great experiment will be commenced this month, as the first monthly part of "Casell's Dictionary of Cookery" will make its appearance on the 25th.

## ON HOMES FOR THE PEOPLE IN AMERICAN CITIES.\*

THE Department of Social Economy in the American Social Science Association have forwarded a Report on "Homes for the People in American Cities." Being too long for reading on this occasion, the committee have requested me to lay before the meeting a condensed view of it. It is an interesting and valuable communication, and will doubtless find a place in our Transactions. It appears that in 1870, when the last national census was taken, there were about fifty cities in the United States with a population exceeding 250,000, of which *seven* (New York, Philadelphia, Brooklyn, St. Louis, Chicago, Baltimore, and Boston) had each a population exceeding 250,000, and seven more had a population of above 100,000 each. The aggregate population of the seven first-named cities then somewhat exceeded 8,200,000, New York alone containing 942,292. The remaining cities had an aggregate population of about 2,000,000, so that the whole urban population of the United States, dwelling in towns of more than 25,000 people, was not far from 6,000,000, or nearly one-sixth part of the whole population of the United States. So rapid is the increase of the urban population, however, that in the present year, 1875, it includes nearly one-fifth of the whole present population of the United States. Ten years hence, it is probable that the United States will have a hundred cities larger than Boston was at the beginning of this century. Hence the great importance of the question now to be considered,—the ownership, situation, and quality of the homes in which so many millions of the people are to live, and where their children are to be brought up.

Shall they be tenement houses, like those of New York and Boston, in which so many of the industrial classes now dwell, or shall they be smaller houses, in better locations, owned by their occupants, like the humble homes of Philadelphia, Chicago, Syracuse, Detroit, and so many of the smaller American cities? In answering this question, each city will need to consider its own needs and possibilities, varying greatly as these do; but it will also do well to consider attentively the means by which Philadelphia, now a city of more than 750,000 inhabitants, has provided for its industrial population better homes than any large city in the world can show for an equal number of working men and small tradesmen.

The contrast between the two largest American cities, New York and Philadelphia, in this respect is very marked, and in the highest degree unfavourable to New York, where also the condition of things is growing worse, while in Philadelphia it is growing better. By the census of 1870 the number of dwellings in New York was but 61,044, for a population of nearly a million,—an average, therefore, of nearly fifteen persons to each dwelling. But in nine of the twenty-two "wards" of New York, a population of 865,000 was housed in only 17,110 dwellings, an average of 21½ persons to each dwelling. When Paris (in 1885) contained about the same population that New York now has, the number of houses there was 50,476, and the number of persons to each dwelling was 22, or just about the same overcrowding that we now find in the worst parts of New York. In Philadelphia, on the other hand, a population of 674,000 in 1870 was housed in 112,366 dwellings, giving one house to every six persons, while in the worst part of Philadelphia the average number of persons to a dwelling did not much exceed eight, or only a third part of the highest New York average.

The number of dwelling-houses built in Philadelphia since 1870 is about 24,000 (at the rate of a little less than 5,000 a-year); so that the present number of dwellings in

that city is upwards of 135,000, which, at an average of six persons to each dwelling, would give a population in 1875 of 810,000. This is more than the estimated population of the city, and therefore the proportion of dwellings to population has been increasing there,—the very result we should expect from the system of building pursued in Philadelphia (which is afterwards described).

In other cities the contrast is not so striking. In Boston, for example, in consequence of successive annexations of suburban territory, the proportion of persons to each dwelling in the whole city has considerably diminished in thirty years, and does not now, apparently, exceed 7½ persons to each dwelling.

Taking together the three cities of New York, Brooklyn, and Jersey City, there was, according to the census of 1870, an aggregate population of about 1,421,000 living in less than 120,000 dwellings (one for twelve persons). At the present time it is probable that these three cities contain more than a million and a-half inhabitants, occupying no more dwellings than are found in the single city of Philadelphia, with less than half as many inhabitants.

The results of the overcrowding in New York are painfully apparent. The reporters attribute the difference between New York and Philadelphia to several reasons, one of which is that in Philadelphia the custom of letting land for a term at a ground-rent has long prevailed, and made it easier for persons of small means to build and own their own houses than it would have been had they been compelled to purchase the land on which they built. It is a novel thing to us in England to hear a system applauded which has produced amongst us so much bad building, and is, for other reasons, now so suspiciously regarded.

Foremost amongst the causes, however, which have provided healthful homes for the people of Philadelphia, the reporters place the operations since the year 1850 of Building Societies, closely resembling the Benefit Building Societies of England as they existed in Lancashire and other northern counties from 1820 to 1850, and while, as they very properly point out, these societies were yet controlled in the interest of the working people. The first society of this sort in America, admittedly following the English model, was founded in 1831. It is estimated that the present number of building societies in Pennsylvania is upwards of 1,000, more than half of them being in Philadelphia, where it is stated that there are more than 80,000 houses now occupied by their owners, and which became their property through the operation of these associations. A long account of the working of these societies is given in the report with strong commendation.

(To be continued.)

## ORGANS.

THE select vestry of Waterford Cathedral have decided on having their grand organ completely restored, it having been in an imperfect condition for some years. Instructions have been given to Messrs. Telford to do all that is necessary, and to add a large and complete new swell organ, the present swell being of very limited compass. The cost of these improvements will exceed £400.

The fine organ in St. Jude's Church, Inchicore, has been re-constructed, and important improvements effected by the addition of several new stops—viz., a viol de gamba, flute harmonique, clarionet and open diapason of large scale, and additional pedal pipes. The quality of the new stops is particularly good, largely increasing the volume and variety of tone. Space for the new pipes has been provided by enlarging the upper part of the case, which is brought forward on a handsome projecting cove, with moulded ribs; additional illuminated pipes being placed in the ends. The organ now

contains 22 stops. All the work has been skilfully executed, reflecting much credit on the builders, Messrs. W. Browne and Son, of Camden-street.

## HOME AND FOREIGN NOTES.

Messrs. Cassell, Petter and Galpin announce "Art Studies of Home Life," with 24 plates by the Woodbury process from pictures by Collins, Leslie, Linnell, Landseer, Mulready, &c., &c.

THE TREES IN SACKVILLE-STREET.—Committee No. 1 of the Corporation have under their consideration the state of the trees in Sackville-street. It would be more to the purpose if they would consider the filthy state of the streets, and the dangerous state of the tumble-down houses in the city, with a view to public health and human safety.

DANGEROUS STRUCTURES—A SAFE VERDICT.—The following was the finding of the coroner's jury in the case of the loss of life caused by the falling of the municipally-neglected structures in South Great George's-street:—"That Anna Maria Flynn was accidentally suffocated by the fall of the house No. 16 South Great George's-street, on the 16th October, 1875, and there is no evidence to enable us to say what caused the fall of the said house." The jury added—"We desire to express our deepest commiseration for the poor inhabitants of this house, who have lost every vestige of their property by the accident, and we consider their case one eminently deserving of assistance towards relieving their distress." North and south of the city there are hundreds of houses in a dangerous state, and they may tumble down at any moment. The Corporation are likely to wait to see the results.

COTTAGE IMPROVEMENT—QUERY.—Our contemporary the *Farmers' Gazette* ought to have a little more discretion than to refer a second time to an instance of a most objectionable kind of cottage building. It says:—"A notable instance of cottage improvement was given a short time ago in our columns, when we published the plans of new cottages and other buildings erected by the Duke of Devonshire on his Irish estates." We thought we proved to the satisfaction of our contemporary and others, that labourers' cottages built with a complete absence of all accommodation necessary to preserve decency did not deserve the name of improvement. Where the functions of nature have to be performed like to the beasts of the field, and a w.c. is considered a luxury that should not be provided, and consequently is not provided—cottages of this description are not improved ones, but rather of the debasing order.

## TO CORRESPONDENTS.

SOCIAL SCIENCE CONGRESS.—There have been several important addresses and papers read at the Congress at Brighton, particularly on the questions of Health and Education, which deserve notice. We regretted to see the daily press of London—while it could afford whole pages to the reports of the "Whitechapel Tragedy" and other abominations—could scarcely find room for a quarter of a column daily of the important proceedings of the Congress. Bad signs, these, our masters! Yet these would-be public instructors attempt to dictate a public opinion.

YOUNG DUBLIN.—Major Swan, of "98" memory, in his latter years lived, we believe, at Grace Park, Richmond (north); and Beresford, another notability of the Irish Rebellion, lived in the mansion enclosed in the grounds of All-Hallows College, Drumcondra. This mansion was once inhabited by the Earl of Charleville in the last century, and previous to the establishment of the college in 1843 it was occupied by Sir Guy Campbell. There are other noteworthy mansions in the same district.

SANTAS.—Some useful papers bearing upon the subject will be found in our present issue.

CRICKET.—The remedy is in your own hands and those of your fellow-ratepayers at the forthcoming ward elections.

W. R. (Belfast).—Send us on the drawing and particulars for consideration.

O. B. (Athlone).—Long used by the Shannon Commissioners, as we state elsewhere; but they were not the first to utilise the stone for the purposes stated.

H. W. C. (London).—The firm you ask about in Dublin are manufacturers as well as importers.

R. and Co. (ditto).—In a few days.

E. M.—You might finish the poem at your leisure, and then submit it to us.

J. B.—E. M. C.—N. P.—Anglo-Celt.—C.E. (Glasgow)—Mary MacD.—Clerk of Works, &c.

EPPE'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Eppe has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame."—*Civil Service Gazette*.

\* "Some Notice of a Report, from the American Social Science Association, on Homes for the People in American Cities." Introductory to a lecture delivered by George Godwin, Esq., F.R.S., at the Social Science Congress at Brighton, "On Sanitary Architecture and Appliances," which we shall give in another issue.



A VISIT TO THE SEWERS OF  
PARIS.

WHEN I was in Paris last week I went down into the sewers of the city. This statement no doubt is suggestive of long boots, a tarpaulin hat, fungus-bearing vaults, horrid smells, and terrific encounters with rats. When, however, I say that I was one of a party of forty or fifty, of whom fully a fourth were well-dressed ladies, it will be seen that my expedition could not have been so unpleasant as it might appear at first sight. In fact the sewers, or *les égouts*, of Paris are wonderfully clean, free from evil odours, and well ventilated, and they constitute a sight which no visitor should miss if he can help it. A letter to the Prefect of the Seine, written on *papier timbré*—you must always address official authorities on paper bearing a sixpenny stamp, to be obtained at any post-office, if you wish your communication to be attended to—brought me a card giving me permission to visit the sewers, and appointing the Place du Chatelet and Friday, at two p.m., as the locality and time of rendezvous. Arrived at this spot I found a *sergent de ville* in charge of the entrance in the sewer, and having given up my credentials I descended by some twenty or thirty steps into the regions below. I then found myself in a long-vaulted gallery, with many branches, a pavement of stone forming the banks of a black rushing stream which was emptying itself into the adjacent river. On either side this stream was a line of tramway rails, upon which a number of comfortable cars, bearing lamps with globes, were presently pushed for the conveyance of the party, of which I was one, under the streets of Paris. These cars, being filled, were propelled by men on either side at a rapid rate along the gallery, and a very wonderful ride it was. Over head was the vaulted roof, and the enormous pipes that supply Paris with water, together with smaller ones containing telegraph wires. Below us ran the sewage river, black and thick, yet giving out no offensive odour, for soon we arrived where we found one of the machines by which the sewage is filtered and deodorised before it passes into the Seine. As we rushed along we noticed that the names of the streets are inscribed on plates at every turning, just as they are above, and thus we passed from the Place du Chatelet down to the Rue de Rivoli, or rather under it, to the Place de la Concorde. There we alighted and were transferred to a number of barges, and in these we were towed along the Rue Royale till we came to the Place de la Madeleine, where our guardians discharged us, and allowed us to mount into the upper air. A more singular journey I never made, and the impression it left on my mind was that the sewage system of Paris is one of the most remarkable wonders.—*Cor. of Liverpool Mail.*

## NOTICE.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

Correspondents should send their names and addresses, not necessarily for publication.

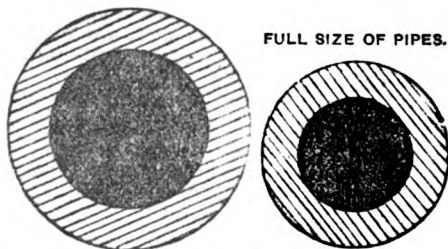
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# The Irish Builder.

VOL. XVII.—No. 381.

About "The Hon. Irish Society."



NCE more the position and constitution of "the Irish Society," so called, is about to be brought under the attention of Parliament, with a view to an enquiry

and a change in the administration of its trusts. That some reform, and a radical one, is needed, is obvious to all who have given the subject an impartial consideration. The late John Francis Maguire, M.P., essayed once or twice to lead to a reform by bringing the case of the Salters' Company and others before Parliament; but he met, as was to be expected, an indifferent success.

The case of the "Irish Society" is now about to be brought forward by the member for Derry, Mr. C. E. Lewis; and naturally a little alarm is felt by the City Companies in London, who have interests at stake. At a dinner of the members of the Irish Society, held a few days back in London, under the presidency of the Deputy-Governor, Mr. James Wyld, the chairman adverted to the "many attacks" which had been made on that assembly, which had "proved harmless," and reminded the company that the threatened assault on the part of the member for Derry would prove "equally innocuous so long as the association pursued a wise and general policy towards its tenantry."

Apart from all political or religious bias, we think it may not be amiss on our part to place a brief sketch of the origin and progress of the "Irish Society" before the public, that right conclusions may be formed of its constitution and entity in this country. On merely historical grounds it will be instructive and interesting for the people of this country in general to refresh their memories as to the origin and career of the Irish Society. Before proceeding further, we will place the case of the society, as stated by Mr. Lewis, before our readers. He says:—

"In the first place, then, I maintain that the 'Irish Society' is, in effect, simply trustees for the public of Derry, and Coleraine, and neighbourhood; secondly, that the present trusteeship, vested in members of the Corporation of London, however great a necessity from local circumstances at the time of granting the charter, is no longer such; thirdly, that the system of government and administration of the large property of the society by a body of London merchants and others is, in an abstract point of view, unnecessary and indefensible; fourthly, that the evils naturally flowing therefrom are aggravated by the very constitution of the body, which, with the exception of the governor, changes at very short intervals of time, thus throwing the power and management of the society into the hands of the governor and permanent officials only; fifthly, that another evil attendant upon such a system of management is the great increase of necessary expenditure, while the scale of actual expenditure for many years has been wasteful, extravagant, and out of all proportion to the necessities of the case and the income

and property to be managed; sixthly, that the amount of income at the disposal of the society has been too much and too long frittered away without an adequate amount of public good being conferred on the district; seventhly, that the uncertain and fickle action of the society with regard to leases has much impeded the progress of this city, and has been a standing grievance not only to the society's tenants but to the general public of the district; eighthly, that the manifest want of great public works and improvements in this city and district, some of which have frequently been pressed upon the society's deputations without any actual results, are such as call upon the citizens of all classes to unite together to bring about a more healthy, prudent, and just management of the trust."

The "Irish Society" had its rise in the reign of James I., after the flight of the earls O'Neil, O'Donnell, and others. The contributing causes to this abandonment of their native land by the Irish chieftains we need not discuss here,—sufficient to say it forms a dark and sad chapter in Irish history. James saw his opportunity, and soon made claim to the immense estates possessed by the chieftains and other native proprietors. Sweeping forfeitures followed of 500,000 acres of land in the counties Tyrone, Donegal, Coleraine, Fermanagh, Armagh, and Cavan, and coming into the possession of the Crown was confirmed by a mock inquisition. The reforming of Ireland then commenced, according to English law, religion, manners, and institutions. The natives were to be dispossessed, or rather rooted out, to make room for English and Scotch adventurers, and properties were parcelled out in lots of 1,000, 1,500, and 2,000 acres; and the "undertakers," as they were called, were to be of three sorts—first, English or Scotch; second, servitors of Ireland who might plant with Scotch or Irish tenants; and, thirdly, natives of Ireland, who were to be made freeholders. This was the "Plantation," afterwards known as the Plantation of Ulster. The rent exacted by James was £5 6s. 8d. yearly for every 1,000 acres occupied by the first class—no rent to be paid for the first two years. The larger portion to be held by knights' service *in capite*, and the latter in common soccage.

The following were some of the conditions: The undertakers of 2,000 acres were to build a castle or bawn; those with 1,500 acres, a stone or brick house and bawn; and those with 1,000 acres were expected to agree to make at least a court or bawn. Further, the undertakers were to build their dwellings as near to the castle or bawn of the original undertakers as possible, who was at all times to provide a sufficient number of arms therein for their mutual defence. Before letters patent were granted, each undertaker was obliged to take the oath of supremacy, and they were prohibited from devising any portion to persons who refused to take the same. These conditions, of course, effectually excluded the native Irish; should, however, any of them conform, to escape penalties, and take the oath, they might be admitted as freeholders, holding their portion in fee-farm, at a yearly rent of £10 18s. 4d. for every 1,000 acres, which was double the rent of the English and Scotch undertakers. And again, while the English and Scotch were allowed two years free, the Irish holders had to pay the excessive rent at the expiration of one year. There were also other privileges denied to them which were customary. They were prevented, on pain of forfeiture, to exact cuttings or coshering, &c. The servitors in Ireland had their holdings in fee-farm, and were to pay £8 for every

1,000 acres inhabited by Irish tenants, but only £5 6s. 8d. if planted with English or Scotch.

The manifestly unjust and one-sided nature of the scheme can be seen at a glance, and the object to be attained is obvious. There were other arrangements made as to the location of certain undertakers in particular districts, and of lands allotted to the Established Church and to Trinity College; but these matters may be passed over.

The Corporation of London was selected by the monarch James as a fitting body to assist in carrying out the gigantic scheme. The notion of the "Irish Plantation" took well with that body, particularly from the manner in which the scheme was placed before it by Cecil, who opened communications detailing the advantages. It was not long before the Privy Council and the Corporation came to an understanding upon the subject; but the London body, always wise, was too acute to seal any agreement until they had an opportunity of informing themselves as to the statements put forward. They accordingly despatched four of their body to this country who, on their return, reported most favourably of the scheme of the Plantation.

In "A List of the Bye-Laws of the City of London Unrepealed," printed by Henry Kent, printer to the Honourable City of London, 1769, we find these entries relating to the year 1609:—

Report of the committee concerning the Plantation in Ireland, 15th Dec.:—

—£15,000 agreed to be expended in Plantation in Ireland, increased to £20,000.—Dec. 22.

—£20,000 granted for Ireland to be raised on companies.—8th Jan., 1609.

—Articles of Agreement between the Lords of Privy Council, and committees relating to Plantation in Ireland.—31st Jan.

—How the payment of the money is to be made.—19th March.

These bye-laws or civic documents, in detail in the original, may be consulted in the archives of the Guildhall, London, along with others to be mentioned further on. They will bear out our historical statement concerning the society. By the articles of agreement the Corporation of London bound itself to levy £20,000, £15,000 of which was to be expended on the Plantation, and the other £5,000 in satisfaction of private interests.

In Derry 200 houses were to be built, with room for 800 more, and land to the extent of 4,000 acres, no part of which was bog or mountain, was to be appropriated as waste land for the city. It was a condition that Coleraine was to be erected on the abbey side of the River Bann, 100 dwellings erected, and room left for 200 more, and that 3,000 acres of land adjoining the town should be appropriated thereto. These 7,000 acres were to be held in fee farm, at a rent of £2 13s. 4d., and the liberties of both places to extend three miles. The estimated 12,000 acres which formed the remainder of the County of Coleraine, with the exception of the Bishop and Dean of Derry's inheritance, and a small portion allotted to three Irish freeholders was to be cleared, and possession given to the Corporation, including the woods of Glanconkine and Killetrough. The duties, customs, and tolls of Derry, Coleraine, and Portrush to be enjoyed by the Corporation for ninety-nine years, and the payment of 6s. 8d. to the Crown. The Corporation were

to have the Castle of Culmore, the lands attached to it in fee-farm, and, better still, the fisheries on Lough Foyle and the Bann, as far as Lough Neagh, in perpetuity. The Corporation agreed on its part that the houses and fortifications it undertook to construct would be finished on the first of November, 1611.

To keep pace with our text, we will now give a few more of the "Bye-Laws."

—Matter propounded to remit 2,000 acres, but the assurance to be taken for the whole. —7th June, 1610.

—Four matters desired by the city, by the Lords about Ireland—two granted, and two refused.—22nd July, 1610.

—Terminal lands to be left out of the assurance for Ireland.—23rd July, 1610.

—Power given to the committee to let the fishings in Ireland, and to send to the companies, to know whether they will take lands or refer letting to the committee.—14th Jan., 1610.

—Act, that eighteen companies shall have share of lands, and time for the rest of the companies to signify their consent.—22nd Feb., 1610.

—A further supply of £10,000 towards the Plantation in Ireland.—10th July, 1611.

—An act for new electing a governor, deputy-governor, assistants, &c., for the Plantation in Ireland.—8th Jan., 1611.

The company or "Irish Society" being now formed, consisting of a governor, deputy-governor, twenty-four assistants, the recorder being one, the governor and five assistants were to be aldermen, the deputy and twelve of the assistants were to resign annually, and others to be elected in their stead; and nine of this body, including the governor or deputy-governor, were to have full authority to hold a court to determine and direct all matters connected with the Plantation.

Here, then, we have the origin of the "Irish Society," of which the first elected governor was one William Cockaine (a Cockney, of course). Tristram Beresford and John Rowley were appointed agents, and these proceeded to Ireland to take possession of the estates for the society. The estates were divided into twelve parts, to suit the principal companies, which included the Goldsmiths, Grocers, Fishmongers, Ironmongers, Mercers, Merchant Taylors, Haberdashers, Cloth Workers, Skinners, Vintners, Drapers, and Salters.

In another paper we will give some account of the subsequent history of the Irish Society, so that it may be judged by its fruits.

## NOTES ON ANCIENT AND MODERN LIMES, MORTARS, AND CEMENTS.\*

### SECOND NOTICE.

In the account of "Further Experiments on the Strength of Portland Cement," given in Mr. Grant's volume, the author writes:—"From the experience already gained in the use of Portland cement concrete, there would seem to be hardly a limit to the purposes to which it may be applied. It is gradually being brought into use in the construction of dwelling-houses in different parts of the country, and there is no doubt it will be still more extensively employed in the construction of docks, piers, breakwaters, and other massive engineering works." We are further informed that Mr. Joseph Mitchell, M. Inst. C.E., has used Portland cement concrete

composed of broken granite and cement, and laid on about 6 in. thick, at Inverness, Edinburgh, and in London, as a substitute for ordinary metalling for the surfaces of the streets of towns.

The proximity of a large bed or area of granite to Dublin might induce some of our township authorities to try it as a substitute for the ordinary mode of macadamising adopted here. On the roads of the County Dublin, and in the city also, some wretched limestone metalling has been used, the stone being from the worst beds of the calp formation—the results, of course, being constant mud and slush in wet weather, and clouds of blinding dust in summer time.

Mr. Grant tells us that many experiments have been made in the manufacture of bricks of different proportions of Portland cement and sand; and he states that they can be made equal, if not superior, both in strength and appearance, to most kinds of clay bricks; so that it is difficult to understand why they are not manufactured as a substitute for clay bricks in localities where the latter are dear. However, he thinks the matter is but a question of time. He holds that where concrete can be used in a mass, it is cheaper than in the form of blocks, and still cheaper than in the form of bricks: each of the modes, he thinks, has its advantages according to the nature of the work. Further experiments and experience convince Mr. Grant that the strength of Portland cement increases with its specific gravity, its more perfect pulverisation, and its thorough admixture with the minimum quantity of water in forming mortar. It has also proved, "to effect perfect cohesion, it is of the utmost importance that the bricks to be cemented together should be thoroughly saturated with water. Dry bricks absorb moisture from the cement, and destroy it."

The utility of using only wet bricks was pointed out by our olden architects and builders; and Semple, throughout his "Building in Water," has been careful to keep darning the matter into his readers' ears.

We still require further experiments in respect to several combinations of cement or mortar for concrete and other purposes. Blue lias and greystone lime mortars, if submitted to the same series of tests as the materials experimented upon by Mr. Grant, might afford valuable results. In the matter of limes, mortars, and cements, grout and concrete, there is a wide field for experiment, for various are the combinations that may be adopted. Some of our modern hydraulic mortars, so called, are, after all, very ancient, though a little modified by forms of manipulation.

It is not as widely known as it ought to be, that concrete blocks on a very large scale have been successfully used by Mr. Bindon B. Stoney in the construction of the quay walls of the extending Port of Dublin. The ordinary quay walls were of concrete formed of one part of Portland cement to ten parts of the gravel of the River Liffey. It is stated that the crushing power at three months was sixteen tons to the square foot, and this concrete was made at a cost of from 10s. 6d. to 10s. 8d. per cubic yard when set, exclusive of the cost of plant. It was not set in blocks, but was deposited between planks in the ordinary manner of making concrete walls. The success of this work induced Mr. Stoney to commence the formation of concrete blocks on a far larger scale than hitherto attempted to his knowledge. The work embraced the building of a wall 24 ft. below low water without coffer-dams. The blocks were made 28 ft. upon the base, 26 ft. deep, and 10 ft. upon the face, weighing the large weight of 880 tons each. It is unnecessary to describe here the appliances made use of to float these huge blocks to their destination. The last of these blocks, formed of one part of Portland cement to six parts of Liffey gravel, and faced with granite, was estimated at 16s. per cubic yard, exclusive of plant, and 18s. with plant. As far as strength and durability are concerned, judging from appearances and lapse of time since Mr. Stoney first com-

menced operations, his method of concrete construction appears to be a success. It ought also to effect a great saving compared with the system of coffer-dams, the great resort hitherto and still in bridge-building and harbour works.

Now, while touching upon modern works in connection with the Liffey, we will revert to an experiment made by George Semple while engaged upon the re-building of Essex Bridge over the Liffey in 1753. He wanted to arrive at the true proportion and quantities of the stuffing for his coffers. He writes:—"I had a box made one exact cubical foot, which held 200 stones fit for the purpose, each stone on an average weighing about seven or eight ounces—the whole, consequently, weighed 90 lbs. nearly. The same box held about 80 lbs. of tolerably dry, sharp, and rather fine sandy gravel, without any sort of stones except those small ones, which usually are among sand. Part of these stones I put again into the box in thin layers, filling the interstices or vacancies with the sand; and after that manner it contained 80 lbs. of the stones and 40 lbs. of the sand; and I know also it would have held the proportionable complement of roach lime—that is 10 lbs. made liquid, as before treated of, which together gives the just quantities of 10, 40, and 80, or 1, 4, and 8, which will be much easier remembered and must be strictly observed; and to this purpose you must depend on some careful and faithful rough mason or bricklayer. And also please hence to observe that one cubical foot of this stuffing will weigh 130 lbs., which is nearly the same weight of one solid foot of Portland stone."

It would appear from Semple's exact instructions that it was quite difficult to get any workman to depend upon in mixing your mortar aright in his day as it is in ours. The "elbow grease," as he speaks of elsewhere, was not used as often as required; and, to save trouble, mortar was drowned with water instead of being subjected to a good tempering.

Semple continues:—"There are three different methods for making use of the lime in such a work as this—one is to mix the roach lime, made liquid, with its proportion of sand and small stones in such a manner as may clothe every stone and particle of sand with it. The second, to slack and turn them all up together like mortar. The third, to lay each of the three, as it were, in thin layers, still observing the same proportion, take which of these methods you please, provided the roach lime be, however, carefully and judiciously mixed with the stones and sand; for, if these materials are not equally mixed, how can you expect them to petrify and unite into one solid mass? But if they are properly mixed together, the whole stuffing of this coffer will actually petrify and become one solid compact substance, as hard and as closely united together as if the same was in one block or rock, and it will be many hundreds of years before the coffer (being in water) will be in the least decayed." "I have some other cautions to give you concerning the small stones you are to make use of: Let none of them exceed an handful or one pound weight, as before mentioned; and, if you can conveniently, let them all be limestone, broken into stones of about that size, carefully preserving the very dust and least scrap of them for use."

Semple's stuffing for coffers was veritable concrete—not, of course, Portland cement concrete, but Irish limestone concrete, and well suited for foundations in water and (with modifications) for cottage building.

The following extract may not be amiss from Semple's pages in relation to wet bricks and tempering mortar aright:—"In the making of cisterns in which tarras is generally used in ordinary work, build all your outside and inside rows or courses with wet bricks, and with tarras mortar, observing that your mortar is to be a little soft for work, and then the heat of the lime-flour will bring it to a proper consistence immediately; but never throw water upon it when you are beating it, for it will chill and slack

\* "Experiments on the Strength of Cement, chiefly in reference to the Portland Cement used in the Southern Main Drainage Works." By John Grant, M. Inst. C.E. London: Land & F. N. Spon.



your lime-flour, which you ought to most carefully avoid; but make the men temper it with the utmost expedition, and what you want in water to make it fit for your work give it in elbow grease; and this rule ought to be observed in making all sorts of mortar."

In the pages of Palladio, Serlio, Scamozzi, Alberti, and others, methods are described of how the ancients built in water, and of the sort of foundations they used. In Rome grout or concrete was used in one form or another, and not much unlike its treatment in our own times. Palladio, in his first book, mentions coffer work made use of "by taking planks laid edgewise, according to the thickness of the walls, filling the void or space between them with cement and all sorts of small stones mingled together and continued after this manner from course to course." He mentions places where there were walls built in this manner. This was certainly a system of concrete.

Leone Baptista Alberti, in his Third Book, gives various methods made use of by the ancients, both in laying foundations and building walls in cases. He writes:—"I have observed that in other places the ancients, who were wonderfully expert in making great works, followed different methods in filling up the foundations. In the sepulchre of S. Antonini, they filled them up with little pieces of very hard stones, each not bigger than a handful, over which they perfectly drowned in mortar." This was more akin to what we call grout in these days than concrete, still it is a concrete mass. Alberti continues:—"In the Forum Argentarium, with broken stones; in the Comitia, with bits of the very worst sorts of soft stones. I have known other instances where the ancients have much the same sorts of foundations, and structures too, of coarse gravel and common stones that they have picked by chance, and which lasted many ages."

We learn from other old authorities how the Romans laid the foundations of their roads, bridges, and other works. The ground on which they constructed their roads they usually strengthened by ramming and laying with flint pebbles or sand, betimes a lining of masonry, brick, and other hard substances, bound together with mortar. Menestrier says that "in some places in the Lyonnais he found huge clusters of flints cemented with lime, reaching 10 or 12 ft. deep, and making a mass as hard and as compact as marble itself; and which, after resisting the injuries of time, 1,600 years, is still scarce penetrable by all the force of hammers, mattocks, &c., and yet the flints it consists of are not bigger than eggs."

The Round Towers and the primitive churches of Ireland afford many examples of grout and concrete, and good mortar which has existed intact for centuries, as hard at the present hour as the stone they were intended to cement together.

The value of good concrete of all kinds cannot be over-rated, and the wonder is, that we, of these western nations, have been so long oblivious to its importance as a foundation or a building material. No dwelling-house, no matter what may be its bottom clay or gravel, should be built without a good concrete bottom. It acts both as a good foundation and a damp-course. Apart from this, however, and reverting to the experiments of Mr. Grant with Portland cement, we think he has furnished the building profession some important conclusions, and he has proven that if Portland cement be properly manufactured and manipulated afterwards, it is superior in most respects to Roman cement. The latter has some advantages: it is very quick-setting, but it greatly deteriorates by exposure to air before use, and, strength considered, it is double the cost of Portland cement. It certainly would appear that there is no limit to the purposes for building and other cognate ends to which Portland cement concrete may not be applied. Indeed we might add that concrete in general, no matter what may be its com-

ponents, so that they be suitable and good, as a material, can be made almost universal in variety of application.

#### THE GAS QUESTION IN DUBLIN.

WE might the chairman of the Gas Company have said at its last half-yearly meeting that it was "second to none in management." It is certainly second to none in its charge for gas, its salaries, collectors, commissions, bad debts, and incidentals. Its capital, compared with its business, also stands second to none. The last half-year's accounts show a share and loan capital of £737,000, to which add some £18,000 due on bills of exchange afloat and we have a grand total of £755,000. Compare this picture with that of the London South Metropolitan doing a large business, giving 16-candle gas at 8s. per 1,000 cubic feet, and not charging for meters. The latter company show 850,000,000 feet per annum, against 700,000,000 of the Dublin company; in share loan and bills of exchange the London company have a total capital of £400,000 only. Dublin is surely second to none in its capital and management, and the price of its 16-candle gas at 5s. 4d. per 1,000 feet, "to be reduced by 4d. at Christmas."

The "Gas Consumers' Circular," in its first number (we hope it will be continued monthly), gives other particulars which we trust our citizens and gas consumers will ponder over. Mr. John M'Evoy, the hon. secretary of the Citizens' Committee, is entitled to something more than the thanks of the ratepayers for his labours on their behalf; and we must also add that a meed of praise is justly due to Mr. James Kirby, for his persistent and untiring energy in keeping before the public the abuses in connection with the gas supply of Dublin.

#### THE NENAGH SEWERAGE SCHEME.

Mr. Francis Doyle, C.E., of Kingstown, has submitted a report to the Guardians of the Nenagh Union on the works necessary to be executed for the proper sewerage of the town. He makes a provision for a total length of 5,770 yards of new sewers, and he estimates that the work will cost the sum of £4,110. He says the quantity of sewage discharged at present into the Nenagh River is not considerable, but, no doubt, it will be augmented by the works now proposed, so that the question of pollution is sure to arise. As the river, he says, is not used for any but agricultural purposes, he believes "the sewage thrown into it will not prove injurious to any of its uses, or create a greater nuisance than before." We doubt it much, indeed. However, he says, should the question of how to dispose of the sewage further engage consideration, "its treatment, defecation, and profitable conversion into manure for suitable purposes, is a matter on which various opinions exist." Truly; and Mr. Doyle states that the plan patented by Dr. Anderson has been attended with good effect at Nuneaton and in Coventry, which comprises: 1. Mechanical strainage of the sewage; 2. Chemical preparation; 3. Reduction of the precipitate daily to a portable condition; 4. Filtration of the effluent water. If it should be necessary to adopt this method of treatment in Nenagh, he estimates for tanks, drying-sheds, steam-engine, pumps, &c., an expenditure of nearly £3,000; working expenses £400 per annum, and calculating on a production of 500 tons of dried manure, valued at £1 10s. per ton, it would, he says, pay a fair interest for cost and expenditure. We think Mr. Doyle under-estimates a good deal the cost of working the Coventry scheme.

In the specification of works for drainage or sewerage of the town, he states he has made a complete provision for carrying out to completion a perfect system, including man-holes, ventilators, storm over-flows, catch-pits, and a sluice at outlet, &c. He

rightly adds:—"To render the sewerage of Nenagh as perfect as circumstances will admit, every house should be properly drained, all cesspools removed, and in addition to proper construction, efficient ventilation should be provided."

The sanitary state of Nenagh certainly calls for an improvement, judged not alone by the state of the old sewers, but of the houses through the town. According to Mr. Doyle's report, the sewage of the town at present is vented from three outlets "into the open and foul ditches in the low grounds lying east of the town, and after a sluggish and tortuous course is eventually discharged into the Nenagh River at the weir under the mill-race to Riverstown Mill."

A complete and efficient system of sewerage is indeed called for, but we trust it will be carried out to the further purification of the river, instead of to its further pollution.

#### DANGEROUS STRUCTURES IN THE CITY.

THE owners of several dilapidated houses were summoned at the Northern Police Court last week to answer the complaint of the City Engineer for allowing their premises to continue in a state dangerous to the public. In the case of a house in Great Britain-street, it was proved that it had received a new front, but that the inside was in a tottering state, and in case of its falling, it was almost certain to push the front into the street. Ordered to be taken down within a week.

The tumbling of three houses in the space of a week or two (with, fortunately, the loss of but one life), should put owners of tenement houses on their guard, for their responsibility is great. We hope the strict letter of the law (so far as it can be found applicable to each particular instance) will be enforced. Our city contains within its bounds hundreds of houses which should have been condemned long since.

On the south side of the city the owners of dangerous structures in Cook-street, Skinner's-alley, Golden-lane, Back-lane, Sandwith-street, Bride-street, and Corn-market, have been ordered to pull down or repair forthwith.

#### "DUBLIN SANITATION."

MACLEAN'S-LANE, according to "Thom," contains nine "yards and tenements," valued at £10 each. The occupiers of the yards have been in the habit of collecting therein the contents of ashpits, &c., from various quarters of the city. The storage of these matters has been proved by the "Sanitary Inspector," the "Executive Sanitary Officer," and the "Medical Officer of Health" to be a nuisance. Coal ashes or road scrapings have been seriously suggested by them as deodorisers sufficiently powerful, when thoroughly mixed with the offensive matter, to render it perfectly harmless.

The writer of an article in the current number of the *Sanitary Record*, under the heading we have placed above, is anxious "to have Dr. Mapother's idea on what are the disinfecting and deodorising powers of such ashes and road-scrapings as are to be found in Dublin. Does not Dr. Mapother know perfectly well that the road-scrapings of a large city and its suburbs require themselves to be deodorised and disinfected? If he does not, the sooner he ceases to advise the Dublin magistrates the better. Does not Dr. Mapother also know that the ashes collected in Dublin are already more than fully saturated with offensive organic matter, so as to be quite incapable of deodorising anything? We are utterly surprised and amazed at Dr. Mapother's statements." So are we.

The magistrate before whom the parties were summoned at the Southern Police Court, allowed four whole weeks for the "mixing" process, as recommended by the officials. Of course we shall hear no more of the affair.

### THE LITERATURE OF GOTHIC ARCHITECTURE IN IRELAND.\*

ANOTHER class of oratories of a more advanced type are treated of by Mr. Brash in the third chapter of his work; these are designated by him "Oratories of the Second Class." The most interesting of these are St. Columb's House at Kells, and St. Kevin's Kitchen. In former papers, when noticing Mr. Wilkinson's book, we gave some description of these early and curious edifices. We may add here, however, that the masonry of the former structure, as described by Mr. Brash, exhibits a superior class of rubble, and that the quoins and other dressings have been squared with the chisel. "The roof is constructed on the overlaid principle, of cubical and rectangular blocks of stone laid to the slope of roof, breaking joint, and bedded at an angle, to exclude moisture." The masonry of St. Kevin's Kitchen is "good-sized rubble, hammer-dressed, and carefully built; the material, principally mica slate, mixed with a few granite blocks; the quoins and door-jambs are built of squared stones, tool-dressed."

According to Mr. Brash, the alterations and additions made to the original structure are quite apparent. He thinks it is evident, from an examination of the structure, that this oratory was converted at a very early period into a church, the chancel and sacristy being added, and the bell-turret on the gable in humble imitation of the great tower close by. In the latter opinion we agree. This transformation, he considers, must have been made at a very remote date, judging from evidence afforded by existing remains which exhibit work of a very primitive type.

Dr. Petrie was of opinion that these early structures were used by the saints or holy men whose names are attached to them, both as residences and oratories—an opinion subscribed to by Mr. Brash. Our annals put down the period of St. Kevin's birth at A.D. 498, and his establishment at Glendalough about A.D. 540—a date which appears to accord with the architecture of the original building ascribed to the saint.

In the opening of the fourth chapter of his work, in which he deals with the subject of our "Primitive Churches," Mr. Brash observes:—"In no country in christendom can we trace the progress of ecclesiastical architecture from existing examples so clearly as in Ireland: this will be demonstrated as we proceed. The oratories of the second class shew a certain approximation towards the church arrangement, and some of them, as I have shewn, were actually converted into such, by the additions of small chancels. The primitive churches were simply rectangular structures of small size, stone-roofed, with a doorway in the west end, a small window-ope in the east, and, in later examples, an additional one in the north or south walls."

The very small size of these primitive churches has occasioned considerable wonderment. Their like is to be found nowhere outside Ireland. The old parochial churches of England are huge compared with the primitive Irish structures. Small churches there are, or have been, in the sister kingdom compared with others, but every county in Ireland exhibits the ruins of numerous diminutive churches, many unfitted to accommodate more than a few dozen of people.

In endeavouring to account for the general smallness of these early Irish buildings, Mr. Brash writes:—"The diminutive size of these churches cannot fail of exciting the surprise of the architectural student accustomed to deal with the great monastic and parochial churches of Britain and the Continent; the cause of this is not easy to ascertain with any certainty. Ancient writers, native and foreign, are silent on this subject; two views of the question have, however, presented themselves to my mind as worthy of consideration. The first being a paucity of con-

verts in the early ages of the church in Ireland. From a careful examination of the subject, I am strongly of opinion that many of the statements made in the lives of St. Patrick, his contemporaries, and successors, as to the rapid spread of the faith, are much exaggerated." . . . . "There can be no doubt that Patrick and his fellow-labourers fought a harder and a longer battle against Gaedhelic paganism than ever they got credit for, and that the ground they gained in Ireland was gained inch by inch." For these and other reasons given, Mr. Brash concludes that humble oratories suitable to the size of the missionaries and their little flocks were erected in suitable localities, and the process repeated in adjacent localities, and so on as the tide of Christianity spread. Thousands of these churches were at one time to be seen scattered over the country, and hundreds of them still remain.

The other reason given by Mr. Brash for the restricted size of these primitive churches is "the pertinacity with which the old Irish builders held to the traditional stone roof. This national covering appears to have been retained by them with jealous veneration, and to have actually influenced to a great extent the size of the churches, as it is quite clear that the covering of any reasonable span with such a contrivance was a problem beyond their power to solve, though they did most ingeniously extend its capabilities to the utmost of their ingenuity."

The second reason given by Mr. Brash is certainly, we think, a tenable one, and may fairly be deduced; and his first conjecture is also entitled to consideration, for even now, as in early times, men or missionaries with judgment would only build in view of supplying possible wants.

There is scarcely an ecclesiastical edifice, ancient or modern, in the country but affords evidence of additions or alterations. Speaking of the churches at Glendalough, Mr. Brash remarks:—"The Refectory, Trinity, and Lady churches are all of small size, built of massive well-dressed masonry, having doors of that Pelasgic character so often described, and where windows exist they are semicircular-headed, the heads being cut out of one or two stones." Over Ireland all these primitive churches exhibit similar architectural features.

In chapter V., in treating of "The First Transition Period," Mr. Brash prepares the way by the following introductory observations:—"The progress of architecture in Ireland from the fifth to the twelfth century appears to have been very slow, as in truth it was all over christendom. In France, internal discords and external interferences retarded its growth up to the period of the Norman conquest, when, strange to say, these ruthless invaders became its firmest promoters. After the victorious sword of Rollo had won for himself a patrimony in the fair lands of the Franks, they embraced christianity, and settled themselves down as permanent *habitants*, parcelling out the conquered estates among the victorious chiefs and soldiers, and making serfs of the original occupiers. The genial influences of their new faith made a remarkable change in these rugged warriors, leading them to cultivate the arts of peace; hence they became the most zealous of church-builders; adopting the Romanesque forms and details which had been slowly advancing their influences from northern Italy into southern and central France, they gave that style so important a development, that the term Norman architecture has been accorded to it by most architectural critics and writers, and by general consent has been adopted, as a true and significant term. This development commenced early in the tenth century, Rollo, the first duke of Normandy, contributing to the erection of the great churches of Rouen, Bayeux, Evreux, Jumieges, Mont St. Michael, &c."

Mr. Brash holds that very little was known of the architecture of England before the Norman conquest, and despite the assertion of Rickman and others who have treated of a

Saxon style, proof is wanting that any such distinct type existed. The churches of Brixworth and Earls Barton, pointed to as of the Saxon style, afford poor evidence; St. Albans was pointed out, too, as a Saxon building, but the date of its erection in the eleventh century proves it to be otherwise.

Through the period of the Danish inroads in Ireland, Mr. Brash thinks we can trace a slow but perceptible advance in ecclesiastical architecture. The churches increased in size, and a marked improvement is to be observed in their details. "While the stone-lintelled door-ope was retained, an attempt at ornamentation is discernible, as in the plain architrave round these features in the churches of Ratass, County Kerry, Our Lady, at Glendalough, and Tomgraney, County Clare."

Further progress and changes in this transition period of architecture in this country is thus alluded to:—"Again, we find a period when this primitive form of door-ope became disused, and the semicircular head, hitherto confined to windows, and usually cut out of one or two blocks, superseded the massive lintel, as at Killaspugbrone, County Sligo, and Britway, County Cork, where we find regularly-constructed arches properly radiated in their joints. A further step is observable in the churches of Oughtamama, County Clare, and Sheepstown, County Kilkenny, where the arched heads spring from chamfered impost, and still further in that of Temple Connor, Clonmacnoise, which shews a plain-moulded impost. The same progress is also to be noticed in the windows, which increase in number; the cut-out head gives place to plain arches, as at St. Nessan's, County Dublin, Mungrat, County Limerick, and many others." Throughout all these changes Mr. Brash observes that it is curious to find that the inclined jambs were still retained in both doors and windows. Coming to the period when mouldings came to be used principally in the window-opes, one of the earliest examples is pointed out as the east window of the church of Ratass, a building near Tralee. The following remarks by Mr. Brash on this specimen of native architecture, are worthy of note:—"When originally finished it was a splendid specimen of the mason's craft, being built of large blocks of red sandstone, brought a considerable distance from the mountains. The west gable is particularly noticeable for the massiveness and excellence of its masonry, its cyclopean doorway, and the antæ on its quoins. Did we meet such a quaint and old-world-looking piece of work in Argolis or Tuscany, we would readily ascribe it to the Pelasgi or Raseni." The east window of this church is semicircular-headed, with large inward splays; externally the head appears cut out of a large block, but internally it is carefully arched. Both the internal and external jambs are finished with an arris moulding, which is continued on the sills.

A couplet window in Temple Righ, or, as it is otherwise called, Melaghlín's Church, at Clonmacnoise, is somewhat similar in feature, but it exhibits more elaborate finish, and, no doubt, it is of later date. Speaking at this point, Mr. Brash remarks:—"We have thus arrived at a period when we can observe a decided change in Irish church building; the old forms derived from a pagan age came to be disused, and forms prevalent in the christian architecture of other countries began to be adopted, though with strong national peculiarities." At what precise date this transition took place, he says, we have slender means of determining, from the reason that our native annals are sparse in the record of the date of the erection of our churches, though full of reference as to the casualties they sustained. These latter churches we have been noticing, as of the transitional period, are believed by Mr. Brash to have been erected anterior to the eleventh century. They mostly exhibit an absence of carved decoration, except what belongs to later additions.

According to Dr. Petrie, Irish architec-

\* See ante.

† "The Ecclesiastical Architecture of Ireland." Dublin: W. B. Kelly, Grafton-street. London: Simpkin and Co.

tural decoration dates some centuries earlier. The elaborately-carved circular window of Rahen Church, with its ornate chancel arch, is ascribed to the eighth century, and so is other enriched work at Glendalough and at Clonmacnoise, but Mr. Brash does not subscribe here to Dr. Petrie's views. He holds that these dates are far too early, as can be ascertained by an examination of the sculptured details of the Romanesque and Norman churches of France and England, of churches whose dates are known beyond all doubt. Some English writers, and Irish too, have asserted that the Irish had no decorative architecture before the Norman invasion in the twelfth century—a date before which some others have said that we had no stone buildings. This latter date is held by Mr. Brash to be on the other extreme, and well it might from what examples his own volume affords. As the subject of "Irish Art" was one of great importance when dealing with the early architecture of Ireland, a chapter is devoted to the question in Mr. Brash's volume, and to some conclusions in it we may refer in our next paper, as we proceed onwards towards the Romanesque or Hiberno-Romanesque period of Irish architecture.

#### "ELEGANT EXTRACTS" FROM THE WORKS OF THE "CITY FATHERS."

We have often had occasion to expose the reckless waste of public money by the Corporation; the constant voting of increase of salaries to officers for doing nothing; the bungled Main Drainage scheme; the deputations to London; the frequent reference to lawyers for opinions; the parliamentary law costs in promoting and opposing mischievous bills—the promoters in some instances being the opponents, having made money by one operation, turned round to make money out of the other, by ways too well known; the systematic traffic in jobbery, and the disgraceful bear-garden exhibitions or scenes that occur at public meetings at the City Hall. These and sundry other abuses we have frequently exposed, inclusive of the marked incompetency and imbecility evidenced by the majority of the members in performing their municipal duties. Of late we have almost been spared the necessity of exposing matters, so well exposed through the utterances of the City Fathers themselves. We therefore from time to time purpose to give some original and select extracts from the works of our municipal magnates, as they, no doubt, will be as edifying as important from being in fact the opinions of the Corporation upon itself.

#### Re MAIN DRAINAGE.

They had recently discovered that the financial condition of the different departments of the Corporation was so deplorable that a committee had been appointed to investigate the subject, and until the report of that committee was before the house nothing could be done in the way of getting the loan.

For several months they had been striving to get a loan of £50,000 to pave the streets, and for some weeks past they had been macadamising the streets.

The sum which stood to the credit of the Sewer Fund was, properly speaking, a credit to the Improvement Fund.

There were 34 queries having reference to the financial position of the Corporation, engineering, &c., and the answers had been prepared after the most anxious consideration for the Town Clerk's verification. The Town Clerk would have to verify them on affidavit, and as he felt that he should answer these queries conscientiously, he took the trouble of informing himself accurately by consulting books, documents, &c. The replies to these queries should be considered satisfactory before any money could possibly be lent.

He found an account of about £70 not yet paid to Mr. Dollard, and he believed that out of the £22,000 they would have only about £600 to their credit. When they had the accounts furnished they would have an opportunity of looking into these things. Four or five months ago he brought forward a matter about these questions. Mr. Byrne at-

tended a couple of meetings, and asked Mr. Neville whether those engineers would be required, and he (Mr. Neville) said they would be required for four or five weeks. They got two months, and then they got two months again.

Mr. Neville has over and over again repudiated Mr. French's statement, and said that it was unfounded in fact.

He objected, and denied the authority of any member to muzzle him respecting important details for which the Corporation were responsible.

On September 25th, 1872, an order was made to pay Mr. John Cunningham £100 on account of his contract, and subsequently in the same year an order to pay him £89.

The work was done by days' work, as I stated. We were pressed to get men, owing to the state of the labour market, and some of the work was set by the yard, the tools and materials being altogether supplied by us. That is really days' work, not contract. . . . It cost more than I thought.

I am of opinion that when there are officers to make affidavits as to the accuracy of the money, we should not take upon ourselves to go through the items.

I believe there was a verbal estimate for £250, and it cost £1,900.

Your officers have gone over the queries, and can verify them by affidavit in the usual way. If we undertake to alter them they will not verify Mr. French's allegations by affidavit. My advice would be to leave the responsibility with the officers. Then there will not be any responsibility on individual members.

I am satisfied with what Mr. Norwood says, and I said the same myself when the subject was mooted here before, but I was laughed at!

It comes to this that when you analyse the account a sum of £21,000 has been spent, for which you have got work to the value of only £8,000.

I move that the Town Clerk forward answers to the queries on conference with the officers of the other departments.

He objected, and suggested that the Town Clerk should be permitted to read the questions and answers through, and on the motion for their adoption it would be open to discuss them.

I approve of the suggestion.

Amen, amen. (Reads the queries.)

The law agent had prepared very many of the answers. He had exercised a general supervision, in conjunction with the Town Clerk, on many occasions.

Amen, amen. (Resumes reading.)

[Block signal raised.]

I move that the council, at its rising, do adjourn till two o'clock to-morrow.

I move that it be seven o'clock in the evening.

And as amendment I would add that everyone should come sober. Gentlemen come here and walk away before the business is done. Mr. Norwood may now go out and whip them in if he likes.

It was arranged that the reading of the queries and answers should not be interrupted, yet Mr. Norwood intervened to move that the house should at its rising adjourn till next day at two o'clock, and immediately when the motion was carried members left.

It is my plain duty when a member informs me that there is not a quorum present, to have the roll called, so as to ascertain the fact.

Fourteen members present! Amen, amen.

He deeply lamented the absence of the gentlemen who ought to attend to consider those important queries and answers. He hoped those in charge of the sanitary condition of the city, and those who would wish to have the abominable Liffey nuisance discontinued would attend to-morrow, otherwise that their neglect should be taken cognizance of at the next election.

I think a great deal of time is wasted in unnecessary talk.

He said the rule ought to be enforced that a member should be permitted to speak but once on the same topic.

Amen, amen. Ah!

Can we see the queries and answers, and copy them as far as they are read?

Verily I say unto ye, I have not liberty to allow ye without the permission of the "whole house."

I wish to call the attention of the council to the necessity of the proper officer of the Corporation carefully inspecting all houses in the city which are in a dangerous and falling condition, and report thereon without delay, so as to prevent loss of life, which may occur in such houses as recently fell in South Great George's-street and Sackville-street.

I maintain there is no necessity for doing so at all. Our engineer is charged with the duty of inspecting such houses, and is probably doing so at present.

The state of a number of houses in Dublin was disgraceful. Citizens should not be exposed to the danger of retiring to rest in tumble-down houses like those which fell the other day in George's-street, where several persons were buried in the ruins, involving the loss of one life. Were it not for the Fire Brigade and their excellent officer, always ready for an emergency, they could not say what loss of life might have occurred. Again, a few days previously, a large corner house fell in Sackville-street; happily not in the daytime or lives might have been lost. It was cruel to permit such houses to exist.

I object to passing a vote of censure upon ourselves.

He had himself visited many houses since his return to town, and orders had been made that they should be taken down. A number of houses would be visited to-morrow also. So far as he could judge, their officer was doing his duty. It was right, however, that the subject should be discussed.

In every case the City Engineer must go before a magistrate and make an affidavit that the house is dangerous. I do not think the subject should be discussed without notice.

It is not through fear of discussion I objected. I might mention that there were thirty or forty houses condemned within the last few months.

If the engineer performed his duty, it was unfair to bring forward such a sentimental motion when there was a panic in the city.

Re MONEY SPENDING.

He approved of an investigation into No. 1 Committee. Its liabilities had been increasing since 1872. Twice the services of public accountants had been called in; and at the end of 1874 it was in debt some £15,500. Unfortunately contractors were haunting them and meeting them on the stairs, and imploring of them to get their accounts paid. That was not the condition in which they ought to be.

At present they were paying 30 per cent. more for materials than they would have to do if they had ready money in hands. In consequence of having got ten years to pay for asphaltting the footpaths, it was costing them 5s. per square yard, whereas if they could pay cash for it the cost would only be 3s. 6d.

"There is no money in the chest, and, begorra, I think the pawnbroking members will have to club to advance the loan. There will be 'high life below stairs' when the cat is let out of the bag."

A VOICE IN THE GALLERY.

THE SOCIAL SCIENCE CONGRESS AT BRIGHTON.

In our last issue we gave a summary of the proceedings of the Congress for the first five days. We now add a brief notice of the two concluding meetings:—

On the sixth day, Sir Charles Reed, the President of the London School Board, read an interesting paper on Elementary Education. With regard to compulsion, he looked upon it as an ugly word, and one which had been used far too freely in the ear of the poor. When Mr. Forster laid down the principle that every child in the kingdom must be instructed, everybody saw that that meant compulsion, by

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whatever name it might be called. But now we may consider the whole point conceded when we find the Home Secretary using the following language:—"The State at present says, We give you time to show whether you yourselves will send your children to school where there is no school board, and how you will take advantage of the opportunity. But, depend upon it, the State will before long again interfere, and see that the children are brought to school." On the religious question, Sir Charles Reed held that the course adopted by the London School Board should be followed. Lord Aberdare, in moving a vote of thanks to Sir Charles, said that the experience they had of the working of the Education Act in his opinion fully justified the adoption of a system of general compulsion.

The Economy and Trade Department, which had not been particularly well attended during the meeting, was thronged during Mr. Cohen's "Address on Foreign Loans and the Report of the Parliamentary Committee of last year on the subject. The author thought the form of the Loans Committee was very objectionable, and he was very severe on the Press for not expressing its views on the matter until after the loans had been contracted. A discussion which followed on a paper of Mr. W. Fowler, which was read by the Rev. F. S. Turner, "On the Opium Revenue of India," called forth a somewhat lively debate. Sir George Campbell, M.P., remarked that he detested the traffic, but no one seemed prepared to suggest a remedy; whereupon Mr. Choy, a Chinese gentleman, took up the matter, and urged the total cessation of the trade in opium. In this view he was supported by Mr. Henry Richard, M.P., and Mr. Hara, of Japan; but a Mr. Smith, who spoke with a strong Lancashire accent, defended the traffic, and created some amusement by arguing that people had a right to poison themselves if they pleased.

On the seventh and last day several papers were read in those sections where it had been found impossible to clear the programme up to the preceding day.

In the Health Department, Mr. J. A. Wanklyn delivered an address on the composition of river waters, and Mr. C. E. Parker Rhodes on the sanitary condition of the populous districts. Miss Anna Swauwick read a paper in favour of the opening of museums, art-galleries, libraries, aquariums, and gardens on Sundays, and, judging from the tone taken by most of the speakers, there was a decided feeling in favour of the proposition.

In the Economy and Trade Section, Mr. Steinthal read the Rev. Dawson Burns's paper on the legal status of the liquor traffic, which entered into a general argument upon its evils and the possibility of improved legislation. He argued that the free and open trade in drink was not justified by experience, and that a very grave defect existed in the absence of the responsibility of the licensing magistrates. He also complained of the absence of all direct inspection, and contended that popular control should, in some form or other, be given; and that there was no reason, to his mind, why the public should not have a right to dispense with the traffic altogether. Mr. Botley thought greater moral responsibility should rest on magistrates; and Mr. Wilkinson urged the advisability of school children being prohibited the use of intoxicating liquors. Dr. Taylor, of Canada, said the four highest church courts in the dominion had passed resolutions in favour of prohibition. He condemned the practice of opening public houses on Sundays, and protested against the employment of young women as barmaids. Mr. Smith, of Halifax, did not believe in protected morality. The liquor traffic did not cause drunkenness, because the liquor did not come to the man, but the man went to the liquor. Mr. Storr pointed out the distinction which existed between the practice of drinking in public and private houses, and remarked that many men consumed more drink than they required, simply because they felt that they must pay for the accommodation provided for them by the landlord. He advocated the adoption of the Gothenburg system, the extension of clubs throughout the country, and the establishment of other places where the manager was not directly interested in the amount of liquor sold. The Alliance party would never carry their bill until they had the moderate consumers upon their side. He believed the extension of club life at the West-end was the great reason for the increased sobriety among the upper classes. After a few words from Dr. Stewart, Mr. Steinthal suggested that public houses should be so regulated that the sale of intoxicating liquors should not be productive of evil. Captain Snow and other gentlemen having made a few other observations, Dr. Edmunds followed with a paper in which he called attention to the fact that the evils connected with the use of alcoholic beverages are, in a large measure, due to the habit of using these beverages as refreshments in place of true food, and that,

owing to circumstances over which they have little direct control, the working classes are unduly and unnecessarily driven to the public house.

During the afternoon a general meeting of the members and associates was held; and in the evening Dr. Richardson delivered an interesting address on national vitality.

At the general meeting it was announced that Liverpool had been selected for the holding of the congress of 1876. The congress of this year, though not favourably successful, was still on the whole an important one and productive of numerous valuable addresses and papers which are certain to work a beneficial influence upon the mind of the age in the direction of Educational and Sanitary Reform.

#### CIVIC LYRICS.—No. XCVI.

##### "THE ABSENT MONUMENT."

(Written on its supposed Site.)

He's in his grave nigh thirty years,  
The Prince of Agitators!  
'Tis said he dried his country's tears;  
But is the love his party bears  
Him, better than a traitor's?

Some stood by him through life; but, dead,  
His standard they deserted.  
And scarcely had his spirit fled  
When some who at his table fed  
Chang'd sides, and were converted!

Some few held on—but very few,—  
And great were the pretences  
Of others, who still cried "Cuckoo!"  
And hid and dodged, yet kept in view,  
And went in for expenses!

These Cuckoos laid their nest-eggs well,  
Fought shy of Father Mathew;  
Ten years ago they rushed pell-mell,  
With service gratis—what a "sell!"—  
To raise the Tribune's Statue!

Ten years have gone, and more may pass—  
I saw a sham Ceremonial!  
I look in vain, alas, alas!  
And is all Irish flesh but grass?  
And where's the Testimonial?

CIVIC.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE first general meeting of the session opens to-day (November 1st). Sir Gilbert Scott, R.A., will deliver the usual opening address, and a portrait of Mr. T. H. Wyatt, the former president, will be presented to the members of the Institute. The following papers will be read during the coming session on the dates affixed:—

Nov. 15th.—On the Decoration of Basilican and Byzantine Churches. By R. P. Pullan, Felk.w.

Nov. 29th.—Notes on Ancient and Modern Egypt. By Professor T. H. Lewis, Fellow.

Dec. 13th.—On the Rise and Fall of Wages in the Building Trades. By Mr. T. Brassey, M.P.

Jan. 3rd, 1876.—On the Lantern of Ely Cathedral. By R. R. Rowe, Fellow.

Jan. 17th.—On the National Safe Deposit Company's Premises. By J. Whichcord, Vice-President.

Jan. 31st.—On Old Cleeve Abbey. By the Rev. Mackenzie Walcott, M.A.

Feb. 14th.—On the Palace of Tiroomal Nalk, Madras. By R. F. Chisholm, Fellow.

Feb. 29th.—On Some Sixteenth Century Chantries. By J. D. Sedding, Fellow.

March 13th.—Biographical Notices of Deceased Foreign Members. By F. P. Cockerell, Hon. Secretary.

March 27th.—On Dwellings for the Poor. By H. A. Darbishire, Fellow.

April 10th.—On Concrete as a Building Material. By A. Payne, Associate.

May 15th.—On the New Guildhall at Plymouth. By Messrs. Norman and Hine.

May 29th.—On the Applicability of Terra-cotta to Modern Church Building. By E. Sharpe, M.A., Fellow.

June 12th.—An Historical Sketch of the Institute. By C. L. Eastlake, Secretary.

The above series of papers embraces a variety of subjects interesting alike to artist and workman, the architect or antiquary. We hope the meetings of this session will be well attended, and that practical discussions will take place at the conclusion of some of the papers to be read, as among them there are ones which are very suggestive. The re-organisation of the Institute, or the placing

of it upon a better footing, financially and otherwise, is likely to receive attention. An improvement has been long desired—a practical reform, and not the Utopia recently advocated of an amalgamation of all provincial societies with the London body. If that were possible, which it is not, it would be a revolution, which would eventually end in mischief instead of improvement.

#### NEW CONVENT AND CHAPEL, BRICKFIELD-LANE.

We illustrate in this number a new convent for the Sisters of Mercy, now being erected in connection with the Night Refuge for Homeless Females, founded some years ago by the late Dr. Spratt. Since it has come into the hands of the Sisters, they have done much to improve the Refuge and add to the comfort of its casual inmates. About three years ago large poor schools were erected by them on a piece of ground adjoining, in which about 1,000 children are taught under the National system.

The convent is faced on all sides with Bridgewater red bricks. The window-stools and other dressings are of chiselled limestone. The chapel measures 63 ft. by 18 ft. internally, with transept for the use of the women in the Refuge. The roof will be wagon-headed, with Caen stone wall-shafts supporting the principals. The details of the building are of a simple character, mouldings being used in capitals, and strings in preference to carving. Any carving introduced is of an Early-English type.

The general style of the building is Domestic Gothic, and it has been planned with a special view to the convenience of its inmates. The result has been a substantial and somewhat picturesque pile. It has been designed by Mr. John L. Robinson, of Great Brunswick-street. Mr. Joseph Kelly, Thomas-street, is the contractor. The cost will probably exceed £7,000.

#### UNKNOWN DUBLIN.

BY THE "OLDEST INHABITANT."

Edited by Mark Philip O'Flanagan, T.C.D.

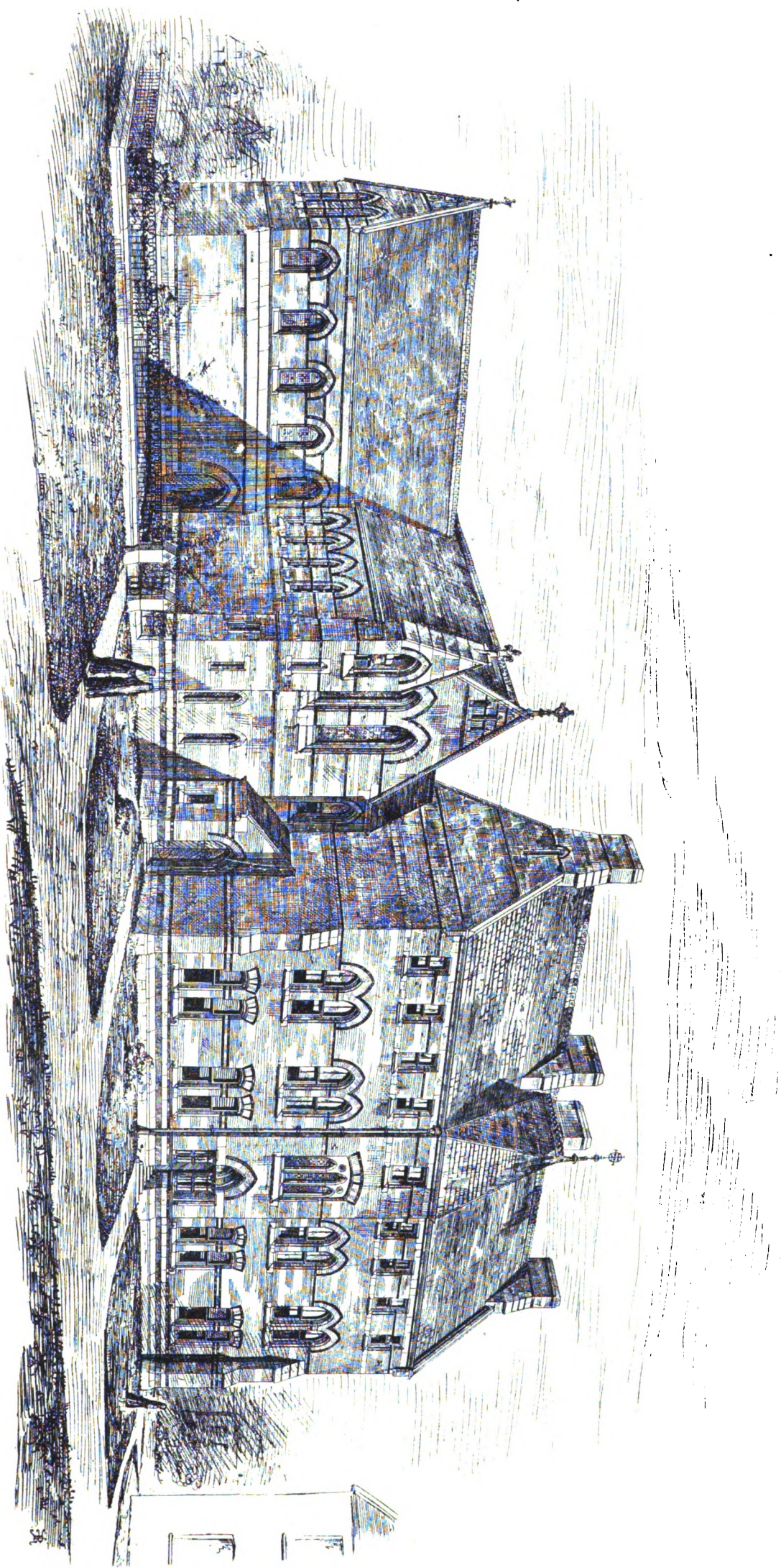
NORMAN KEYS—second visit.

HAVING renewed our visit to the olden "Keys," the "Oldest Inhabitant" continued his narrative.

"I forgot to mention on our last visit here that before Semple commenced the building of his bridge, a sort of charitable lottery scheme was got up in 1752, intended to aid the funds for the repair or building of the bridge, the Lying-in Hospital in Britain-street (then erecting), Mercer's Hospital, the Charitable Infirmary on Inns'-quay (now Jervis-street), the Incurables at Donnybrook, and other institutions standing in need of support. The real profits of this lottery scheme were to be applied to the re-building of Essex Bridge and to the use of the several hospitals, in the manner and proportion to be settled by the managers. What were the exact results shewn of the lottery I cannot say. Lottery schemes were very rife in Dublin during the last century, and continued down until the present century. The Royal Exchange building was set on foot first by the getting up of a lottery scheme by several of the principal merchants of the city, and, to the credit of the same merchants be it said, in the architectural competition they awarded three premiums for the three best designs. Thomas Cooley, the selected architect, getting £100, James Gandon £60, and Thomas Sandby £40.

"Staple-street, sir, was a very important street when Semple's new bridge was opened, and its busiest years were those immediately preceding the opening of Gandon's Bridge at the foot of Drogheda-street. In Malton's





CONVENT OF MERCY BRICKFIELD LANE DUBLIN.

JOHN L. ROBINSON ARCHT.





Views of Dublin near the close of the last century, a view is given of Semples Bridge as it then existed, with its heavy balustrades and alcoves; and in the view is included part of the corner houses on the Upper and Lower Keys, adjoining Staple-street. The view is worth looking at, as it shows the old-fashioned shop fronts and the signs overhead, with the names and trades of the residents. Before passing on I may mention that the south abutment or pier of Semples Bridge rested on a portion of the solid rock which runs in an oblique direction across the river, from the corner of Essex-quay to Liffey-street, and this rock was known formerly by our citizens by the expressive name of "Stand-Fast Dick." In cutting way for the southern abutments of the bridge and its approaches on the opposite side of the river, a portion of Newman's Tower, marked in Speed's Map of Dublin in 1610, was come upon, and also portions of two older quay walls, probably remains of the previous landing quays of the old Custom House. Several years ago I remember the street being opened facing the southern approach of the bridge, and red brick arches were bared showing mortar harder than the bricks. Indeed, the workmen with their hammers and picks found it easier to smash the bricks than loosen the mortar from them.

"I mentioned in our former visit the principal merchants and traders that resided on both 'Keys' in 1786. Many of these continued to reside there into the present century—coming up to the period of 1796-1800. The merchant element was very strong on both Keys, and some of these held public offices in the Corporation and other public boards. Among the principal merchants, traders, and others, who lived on the Upper 'Key,' about the period of the Union were—Anthony Willis, a refiner, at 2; Samuel Smith, paper stainer, at 11; William Morgan, watchmaker, at 19; Patrick McKeever, one of the old race of knee-breeches makers and glovers, at 1; Leonard John Long, watch and clock maker, at 23; Thomas Kennedy, carpenter and undertaker, at 27; Peter Hoey, bookseller and stationer, at 33, formerly of Skinners'-row, but of him I will tell you more shortly; James Hamilton, jun., merchant, at 18; William and Anne Gordon, china and glass merchants, at 18; Daniel and William Finn, hatters, at 12, also in Old Church-street. William Finn was of the Common Council, and member of the Guild of Feltmakers in the Old Corporation; Isaac Eades, fishing-tackle maker, at 24; John Dickenson, ironmonger, at 10; David Clarke, merchant, at 9; Samuel Dixon, shoemaker, at 6. His brother or relative in the same trade lived at 4 on the Lower Key, and was a member of the Common Council, of the Shoemakers' Guild. Francis Gore, a barrister, lived on the Upper Key about this time, and a number of attorneys practising in the different courts.

It would be difficult to draw a comparison between the upper and lower locality as to which had the most wealthy residents at the period of the Union. That can only now be judged from the nature of the trades or other businesses carried on. At the period to which I am referring, the principal merchants and traders that lived on the Lower Key were—Richard Litton, merchant, at 21. He afterwards filled some public offices, I believe. Edward Whitehead, wine merchant at 19; Jeremiah Sullivan, paper maker, at 14; John Roche and Co., merchants, at 9; Robert Roberts, merchant, at 8; John Renshaw, silver-plate and brass-founder, at 35; Francis Thomas Power, merchant, at 34; Philip Molloy, merchant, at 7; Michael Mernagh, ditto, at 26; Robert and William Magee, ditto, at 27; William McCleary (or Cleary), printseller, at 18, the founder of the noted print-shop that existed for long years afterwards in the present century at 32 Nassau-street. In latter years the shop was known as 39, and a trade in books as well as prints was carried on under the same name, and many a funny caricature was exhibited in the window, of public men

and matters; Patrick Hughes, merchant, at 20; David Kent, paper stainer, at 6; Peter Grehan, merchant, at 9; Forbes and Roberts, merchants, at 12; Edward Dillon, apothecary, at 26; Thomas Delahoyde, druggist, at 25; Francis Collins, merchant, at 5; John Boyd, merchant, at 31; Charles Blake, apothecary, at 19; Alexander Bell, factor and broker, at 18.

Many of these I have named were old residents, and did a good trade, and the names of some can be traced down through varying changes in the same lines of business for half a century and upwards in the city. There are some names that I have mentioned deserve more than a passing notice from their long connection with our city. Peter Hoey, who was for many years at the corner of Charles-street, on the Upper 'Key,' originally established himself in the bookselling trade at 1 Skinners'-row, now Christ Church-place. He was in Skinners'-row as far back as 1786. About the year 1788, Peter Hoey, I think, removed to the Norman Key. There is a lease in existence of the date 1788, assigning the premises on Norman Key to him. The shop here was known by the sign of the 'Flying Mercury,' and this sign-board is, I believe, to be still seen in the old shop which, since Peter Hoey's time has passed through two or three hands, successors partly in the same line of business. After Peter Hoey's death his widow, Margaret Hoey, carried on the business of bookseller and stamp stationer, and the old shop became known as 38 instead of 33, owing, I suppose, to an alteration in the numbers of the houses. Margaret Hoey continued the trade here down to some time after 1818 or 1820, and was succeeded by Robert Dalton in the same line; and after his death his widow, Margaret Dalton, carried on the business till 1851. Mrs. Dalton was succeeded by Mr. King, of the Stamp Office, and he died last year, and the old business is carried on by his sons.

"This No. 33 or 38, at the corner of Charles-street, is indeed a historic house, and deserves a little volume to itself. Peter Hoey, the founder of the house, did a large trade in his day in the book line, and he published some books as well as imported them. He published a little work, among others, entitled 'The Justice of Peace,' the third edition of which appeared in 1790. This was issued at the 'Flying Mercury' on the Key. The preface to 'The Justice of Peace's Guide,' in the issue of 1804, commences thus—'As no gentleman is born a justice of the peace, and the business is become so very extensive, that it requires some years to be in any tolerable measure master of it, the precedents of an old practiser, with references to the authorities on which they are founded, it is presumed may be of universal use.' It would be interesting to know, sir, who the old practiser was.

"Some twenty and odd years ago an old weather-beaten sign-board was to be seen somewhat loosely attached to the brickwork between the drawing-room windows above the old bookseller's shop. All the holdfasts but one that held it had lost their hold, and this one was the sole saving peg which kept it from tumbling on the busy footway below, and possibly smashing the head of some anxious lawyer or attorney hurrying to the law courts. I often endeavoured to decipher some letters on this old wooden sign-board, but it was some considerable time before I succeeded, and then I had to look at it from a particular angle when the sun was glancing aslant it. The words 'Peter Hoey' could be made out, but the utmost ingenuity could extract nothing further, and only one in a hundred people could even have discerned the name. I often wondered why the old board was let remain so long upon the face of the brickwork, but there it remained through successive changes of the house, until every shred of paint was almost washed from the surface of the board, and the last holdfast said 'I can hold on no longer.' The board at last came down, and I never heard it hurt anybody, lawyer or other.

"The house in Charles-street adjoining Hoey's old bookshop is known or was known as the 'White Closet,' but whence the name I cannot speak with certainty.

"Coming down to the period of 1810-20, many names and events crop up of an interesting character, and some of these names are so suggestive of matters that I cannot possibly pass them over. The printing and bookselling element increases; publishers and other craftsmen of the literary world take the place of ordinary traders, and Norman Keys undergo a considerable change. Old names disappear, though still some old firms are continued from sire to son, and new faces rise up to also play a conspicuous part in the trade annals of our city.

"I think, Mr. O'Flanagan, I may halt at this stage of my narrative, and leave till our next visit what further I have to say about Upper and Lower Norman Keys. There is much that is interesting yet to tell, and possibly it will take more than another visit to point you out old haunts, and unravel a little of the tangled web that envelops them."

Agreeing to the suggestion of the companion of our rambles, we parted for the evening with the "Oldest Inhabitant."

#### THE ARCHITECTURAL ASSOCIATION (ENGLAND).

THE first meeting of this association, opening with a *conversazione*, was held on Friday, the 29th. Some works of art, contributed by members and others, were exhibited. On the 5th instant Mr. Quilter, the president, will deliver his address, when the reports from the different classes will be presented. The following is the programme of the papers to be read during the session, subject to possible alteration as to date, to suit the time of members:—

- Nov. 19th.—On the Use of the Supernatural in Art. By Wyke Bayliss.
- Dec. 3rd.—How the Parisians Build a "House in Flats." By W. H. White.
- Dec. 17th.—On Things in General. By W. Burgess.
- Jan. 7th, 1876.—On Consistency and Refinement in Architectural Detail. By J. P. Seddon.
- Jan. 21st.—On certain Mathematical Instruments, and some Suggestions for new Combinations. By F. C. Penrose.
- Feb. 4th.—On Plan as the Basis of Design. By H. H. Statham, jun.
- Feb. 18th.—On the Characteristics of Ground Plans adopted by the Greater Conventual Orders of England. By the Rev. Mackenzie Walcott, M.A.
- March 3rd.—On the Treatment of Scientific Engineering artistically. By Professor Kerr.
- March 17th.—On the Metropolitan Building Act. By T. R. Smith.
- March 31st.—On the Architecture of South Holland. By H. W. Brewer.
- May 5th.—On the Proportions of Gothic Buildings. By R. P. Pullan.
- May 19th.—On the Architecture of La Charente, France. (Annual Excursion.) By E. Sharpe, M.A.
- June 2nd.—Notes on the Construction of a Public Aquarium. By J. Norton.—On the Principles and Application of the Theory of the Truss. By W. W. Robertson.
- June 16th.—On the Organ architecturally considered. By G. A. Audsley.
- June 30th.—On the Architect and the Pupil. By T. Blashill.

It will be seen that the authors of some of the above papers, to be read at the Association, are also the authors of other papers to be read during the session of the Royal Institute. The papers to be read at the Association, as far as their titles go at least, bespeak variety and practical range, and we have little doubt that in several cases, from the names of their authors, satisfaction will be afforded. As long as the Association can put forth such a good programme, and fulfil it with credit, and manages internally its affairs as it has hitherto done, in like manner there is no reason why it should allow itself to be absorbed by any form of amalgamation. There is ample room in London for the Institute and the Association working practically apart, while united in spirit, for the interest and advancement of the architectural profession.

### ROADS AND PAVEMENTS— THEIR CONSTRUCTION, WEAR AND TEAR, SANITARY ASPECTS, ETC.

(Concluded from page 285.)

#### APPLICATIONS OF SPECIAL SCIENCE AND ART NEEDED FOR IMPROVEMENT IN ECONOMY AND EFFICIENCY.

On a retrospective survey of this field for the application of engineering and sanitary art and science to street and road formation, and maintenance and cleansing of the metropolis, as well as of other cities, it appears that that service has three periods of progress—1. Of entire ignorance and apathy. 2. Of empiricism, from which it has to be retrieved. 3. The period of science brought under view for competent treatment.

The conclusions of the Metropolitan Sanitary Commission as to the drainage works of the metropolis, appear to be applicable to its street and road works:—"The more the investigation advances, the more it is apparent that the progressive improvement and proper execution of this class of public works, together with the appliances of hydraulic engineering, cannot be reasonably expected to be dealt with incidentally or collaterally to ordinary occupation, or even to connected professional pursuits, but require a degree of special study, which not only places them beyond the sphere of the discussion of popular administrative bodies, but beyond that of ordinary professional engineering and architectural practice. In justification of this conclusion, and to show the evil of the perverted application of names of high general professional authority, we might adduce examples of the most defective works which have received their sanction. All the improvements which the public have yet obtained in this branch of public works have been the result of the special and undivided practical attention of well qualified paid officers; and it appears to us that further improvement must be sought by the same means, and that one of the chief objects of future administrative arrangements must be to secure, protect, and encourage the zealous undivided attention and efficient labour of such officers."

Strong allegations are rife as to the predominance of the sinister interests of contractors at local boards, making them in-trenchments against improvements. It may be so, and in the absence of effective securities for a correct expenditure of the public rates, it is very likely to be so; but we have not the means, nor have we deemed it our province, to inquire as to the foundation for such allegations. Moreover, we have the conviction, that however pure may be the expenditure in intent, an efficient and economical administration is impracticable in such narrow areas as those to which it is left unaided and unguarded by any fitting experience.

Sir Joseph Whitworth and all disinterested scientific and competent witnesses concur in this conclusion. The observation is indeed, forced upon us that the intelligent and respectable members of the local boards who would extend their views beyond their narrow, incongruous, and incoherent parochial jurisdictions to the general wants of the metropolis, and who would consider the cramped and utterly inadequate conditions in which they are placed to meet them, would themselves suggest the delegation of their functions, for the establishment of unity of management under one competent authority with adequate power, as essential to economy as efficiency. But we regret to state that the scenes in the streets, and the public complaints appear to have excited no interest—in the recent examples of improvement, imperfect as they may be—placed before them by the City Corporation, or those that have long existed of improved wheel traction. The immediate and present examples have had as little effect in inducing improvement as the past demonstrations of science. Only small patches here and there have been yielded with great reluctance to pressures of influential individuals

for relief from the noise of the common granite pavements. The substance of a recent defence of the vestries in Parliament by the chairman of the Metropolitan Board of Works as reported, was how much money they had spent and were spending, and with the implied conclusions they would go on spending in their existing conditions, without the slightest manifestation of a consciousness that there was anything to be amended in them. Their expenditure appears to be at the rate of one million per annum for the metropolis, being at the rate of £2 5s. per annum per house for "making, maintaining roads, streets, and footpaths, and for scavenging and watering the same,"—such as they are—and it is greatly beyond the widest approximate estimate we can get of the expense of an improved formation and management, and it calls for investigation.

#### GENERAL CONCLUSIONS.

On a review of the information collected by the Committee on the common methods of forming, paving, maintaining, and cleansing the surfaces of streets and roads in the metropolis, in respect to the science and art conclusions herein before stated, namely, that they powerfully affect the health of the population to an extent heretofore unknown and disregarded, and ought to be brought within the cognizance of sanitary officers, that the street and road formation might be so far improved on a long-tried principle as to reduce the tractive force needed for traffic by more than one-half, and that a threefold amount of street cleanliness was attainable by improved machinery, without any augmentation of the usual rate of expense for hand-cleansing; we find that from want of science and art instruction, from ignorance and apathy, these demonstrations have been of little or no avail, and that the general condition of the streets, in excessive filth, and noise, and disorder, are the reflex of the general condition of an expensive local administration;—that the common defective conditions of the greater proportions of the surface, formation, paving, and cleansing of the streets, with the increasing traffic of the increasing population of the metropolis, occasions much filth, consisting chiefly of pulverised horse dung and granite dust, to be deposited on the person, clothes, furniture, and houses of the population; that the filth so deposited is highly injurious to health, especially to an extent hitherto unregarded of the children of the wage classes of the population, as well as the adults of those classes, who have little means of frequently washing themselves to remove it;—that such aggravations of the conditions of personal filth and squalor, besides being detrimental to health, have a pernicious effect in lowering the self-respect and the moral status of the wage classes of the population; that the excessive noise occasioned by vehicular traffic over the common pavements is a cause of suffering to invalids, occasions doors and windows to be shut to keep it out, and ventilation to be obstructed. We find, moreover,

That on an average upwards of two hundred persons are annually killed, and upwards of ten times that number maimed or injured in the streets of the metropolis, the greatest proportion of which injuries occur on what are called "greasy days," or days of excessive slipperiness, occasioned by defective cleansing;

That such conditions of bad cleansing and defective methods and bad paving are the occasion of excessive cruelty, accidents, and injuries to horses, and fractures to vehicles;

That the best means of preventing such accidents, by better applications of supplies of water for cleansing the streets, are the same that are needed for the better protection of life and property from fire in houses;

That the economical and efficient application of art and scientific means of relief is frustrated by the conditions of the fragmentary areas of independent, obscure, and virtually irresponsible local administrations, under which the metropolis is placed, which

give, for example, one main thoroughfare from east to west to fourteen vestries or independent authorities, of which the Corporation is only one, and another line from north to south to thirteen parishes, each being charged with only one mile of the line, which divide some streets longitudinally between different parishes, one cleansing or paving the street at one time, and one at another, in a manner detrimental to both; and

That the first and essential step to any effective and economical improvement is to get rid of these disorderly and discreditable administrative conditions—which exist at the expense of life and limb, and health, and comfort of the population, and the freedom of traffic of the metropolis—and to place the whole area under unity of administration by a specially competent and responsible authority;

That the attention of her Majesty's Government be solicited to these conclusions and to direct a more full examination of the facts on which they are based.

Unity of administration is the declared object of the agitation for a metropolitan municipality, which it may be assumed would include the administration of the roads. Without entering into that question, there can be little doubt that several years—four at the least—must elapse before that object could be obtained, and so large a body be got into working order. Such delay, it appears to us, would be unnecessary and injurious, and that a special provincial commission, or general metropolitan road trust, properly constituted, and giving its individual attention as it ought to the service, might get the streets in a fitting condition without the sacrifice of health, waste of life and property, and perpetual fatigue and annoyance. Any such general organisation as that contemplated could be reasonably expected to be constituted long before that time.

### ON HOMES FOR THE PEOPLE IN AMERICAN CITIES.

(Concluded from page 293.)

SPEAKING of the prevalence of tenement-houses in New York and Boston, they point out that the death-rate is highest in the parts of these cities where the tenement-houses, each containing numerous families, are the most numerous; and there, also, crime, vice, and pauperism most abound. Complimentary reference is made to the doings of Miss Octavia Hill, whose example has been followed in New York and Boston with more or less success.

It is found in Boston that the New Building Laws there, requiring greater strength, have almost put an end to the building of small houses, by adding greatly to the cost of construction.

A full description is given of the small houses built in Philadelphia under the operation of the societies; they are said to be uniformly in good repair, and neat in appearance. The party-wall between two houses is uniformly of brick. They are from 12 ft. to 17 ft. front, and from 26 ft. to 34 ft. deep; the average of the two-storey houses being 14 ft. by 30 ft., on lots 14 ft. by 50 ft., or 60 ft. and even 80 ft., in remote parts of the city. They have four, six, and sometimes, in three-storey-houses, eight rooms and a bath-room. The front doors are rarely over 2 ft. 6 in. wide and 6 ft. 6 in. in height; the entry usually runs through the house, with stairs at the back, and is narrow. These streets are in good order, and the neighbourhoods are proverbial for the quiet behaviour of the people. The policemen say they never have any trouble there, and other people speak of them as being good citizens. Drunkenness is not common among them; they are generally temperate, industrious, and frugal.

The State of Pennsylvania, in which these building associations exist in greater numbers than in all the rest of the United States together, had, in 1870, a population of more

than three and a-half millions, and now has probably more than four millions. Close beside it is the little State of Delaware, with only 125,000 inhabitants in 1870, of whom about one-fourth (30,841) dwelt in its single city of Wilmington. Here the proportion of persons living in one dwelling is less even than in Philadelphia, being only  $\frac{1}{4}$ ; and here, too, a great many of the working people have become owners of their homes through the aid of building associations like those of Philadelphia.

It is about twenty years since these associations began to exist in Wilmington, and none has ever been known to fail. All classes of the people there invest in them, but the borrowers, who are more than half of the shareholders, belong almost wholly to the middle and labouring classes. In some of the States these societies are discouraged by the Legislature or by the Courts, on the ground that they exact usurious interest. This was formerly the fact in Pennsylvania also, but they are now allowed there, in Illinois, and in several other States, to deduct what premium they choose from the loans they make, without being liable to forfeiture of contract by reason of usurious interest. They do not at present exist in Massachusetts or New York, and in Michigan the act creating them has been declared unconstitutional.

Briefly to recapitulate the statements set forth in the report,—it appears that overcrowding already prevails in a few American cities,—notably in New York and its suburbs, in Boston and in Cincinnati; but that in most of the cities there are more dwellings in proportion to the number of inhabitants than in the cities of Europe. The tendency is for overcrowding to grow worse from year to year, as the city population rapidly gains; but this tendency is counteracted in many cities by the inclusion of cheaper land within the city limits; by the changes which often take place in the localities of trade and manufacture, making crowded quarters more useful for other purposes than habitation; and by many other causes. Among these may be named, as a matter of certainty, though sometimes called in question, the generally increased prosperity of the working people (who have been quite steadily improving their condition since the beginning of the civil war), and the action of municipal government and benevolent citizens. In Philadelphia and a few other cities, a great check has been given to overcrowding by the action of the Benefit Building Societies, which, contrary to the custom of such societies in England, as the reporters say with emphasis, do provide homes of their own for working people, even of the humblest grade. The management of these societies in Philadelphia is described at some length, both because of their extraordinary results, and because they differ in many respects from the English Building Societies as now constituted, though originally the plan and working of them seems to have been much the same in the two countries. The difficulties and dangers attending these societies are not dwelt upon, because their success in Pennsylvania has been unquestionable, and because, their principle in the opinion of the reporters being sound, they only need vigilant and honest management to succeed elsewhere. They think it is but fair to say that in some portions of the United States, where Building Societies or Loan-fund Companies somewhat resembling those in Pennsylvania were attempted twenty years ago, with unfortunate results, their failure seems to have been owing to a departure from the true method of management. These societies need to be managed (at least in America) by the whole body of their members, and for the mutual benefit of the borrowing and non-borrowing members. This was not done in the unsuccessful associations of Massachusetts and Connecticut; and whenever it ceases to be done in Philadelphia, misfortune will sooner or later be the result.

It was not thought necessary to point out the moral, social and political advantages to be derived from the best practicable arrange-

ment of homes for the people in cities and large towns. These advantages are even greater in a democracy than under any other form of government; and hence one reason for the increased attention which Americans are giving to the subject. The theory of their institutions requires that every citizen should have a home and a family interest in the community—that he should be self-supporting and self controlled,—giving naturally his aid to the government which exists by his own choice. The risks and evils attendant upon overcrowding and ill-government in their great cities are now quite as formidable as those which relate to the condition of the southern freedmen; but a vigorous effort, such as becomes a great nation, will, they believe, by the blessing of Providence, give them security, stability, and prosperity, even greater in the future than in the past.

## HANDICRAFT AND HANDICRAFT TOOLS.

(Continued from page 290.)

### HERCULANEUM.

THE history of the foundation and erection of this city is very obscure. It was situated about five miles east from Naples. In the time of Titus, A.D. 79, it was overwhelmed by the eruption of Vesuvius, which destroyed Pompeii; first buried by ashes, and then overflowed by lava. Its place was discovered by the sinking of a well in 1706, when the remains of a theatre were found. Two villages having been built upon the superincumbent lava, it has been very difficult to follow up such investigations as were from time to time contemplated. The obstacles to progress were met as best they might, and the chief results of about fifty years' occasional investigations are deposited in the museum at Naples; there are statues, paintings, and vases, also domestic implements of every use and description. In various forms many of these have been published, some as reproductions in plaster, others as paintings, others as engravings. One of the largest collections of the latter is a volume entitled "L'Antichità d'Ercolano, Naples, 1757," in ten thick folio volumes, the text being in Italian. Messrs. Martyn and Lettice have translated portions of this work, and from their translation the three diagrammatic illustrations on the wall have been copied. The originals have more details than the copies contain, but the latter are sufficiently complete to introduce us to the tools and modes of carrying on certain portions of work done by the makers of wine, by shoemakers, and by carpenters.

An examination, however cursory, will enable anyone versed in these crafts at the present day to compare our mode of operating with that adopted two thousand or more years ago, in the south of Italy.

In one diagram there are represented two winged genii, evidently intelligent carpenters; the occupation and the tools around them may be instructive to us in the nineteenth century. The attitudes of the carpenter genii are what might be assumed at this day by two men who were intending to cut off the corner of a piece of plank. They remind one of the modern pit-saw with one man above and one below.

What next will attract attention is the saw itself. Compare the artistic drawing of this tool with one on the table, a construction of framing common at this time. The identity is very striking, and we may almost be disposed to say that with all our improvements and our advances we have not altered this string-stretched frame saw, for it is now as it was more than two thousand years ago.

The artist does not seem to have been a carpenter, for he appears to have made the central lineal bar, whose fixture between the two ends gives the fulcrum on which the tension of the upper cord acts in tightening the saw, to take in his drawing the front of the saw. Subject to such corrections as antiquarians skilled in carpentry may suggest, there seems every reason to conclude that

the instrument is exactly like our own, and that the lower line is the saw, and the upper one the cord, by the twisting of which the requisite tension is given to the saw. The hands of these carpenter genii are well placed; the lower workman applies one hand to the frame on the line of the stretching bar, and the other hand to the top—thus, so far as he is concerned, leaving the saw-blade quite visible through its entire length, and at the same time steadying it. The upper workman has one hand also on the tension bar, and thus he and his co-partner are working in concert—in the same line—no cross-winding of thrusts or pressures. These, too, are the right hands. The left hand of the upper workman is employed in steadying the plank—an attitude and occupation for which the left hand is even now called into requisition. Thus one workman steadies the saw with his left hand, the other steadies the wood with his left, each using the right hand for the work. The trestles on which the bench rests are the same in construction as trestles at the present day, and it is worth while noticing that the bench top is drawn as made of thicker timber than that the genii are sawing. There are two square holes in the top of the bench. Even if the drawing did not suggest the probable use of these, an ordinary carpenter could do so. We are not, however, left in doubt, for at the end of the bench or the right hand there is a plank prepared for sawing, and it will be noticed that it is held in its place, i.e., held steady by means of a holding down iron of which the one in my hand and others to be found in any carpenter's shop at the present day are exact counterparts. Under the bench is a box, apparently one in which the tools might be kept. In front of this box is what we may call a hammer, the square shape of the handle however may not be thus interpreted, and perhaps it is a square. On a bracket shelf against the wall is a small pot or jar, in which probably oil or grease for the tools may have been kept.

### ON THE GRAPE AND OLIVE PRESS.

The press usually described by ancient writers had a screw or weights; such presses seem to have succeeded the one figured. This one is evidently very ancient, and offers to view several things of which little or no mention is made among ancient authors. It consists of two large rough pieces of timber fixed upright into the ground, and fastened together at the top by a cross beam equally large and rude. There are horizontal cross timbers which appear to be planned so as to move or slide in vertical grooves. Between these sliding boards are roughly shaped wooden wedges; indeed, they seem little better than the natural branches or stems of trees inserted one over the other with pressing sliding boards between.

The positions or attitudes of the genii workmen clearly explain the object of this contrivance, and that which gives it both importance and value as an illustration of a tool used in ancient handicraftsmen, is the fact that they used hammers with long handles just as smiths do at the present time, when welding iron or other work that requires a heavier blow than the ordinary one-handed hammer can give.

Now the really instructive part for us this evening is the placing of these genii on the opposite sides of the press, and so evidently using wedges with the tapers in opposite directions, a plan of wedging up which a skilled artisan would always use in preference to a single wedge if the circumstances of his work permit. Nor is this the only commendable feature in the wedging. The narrow cross boards which can slide in grooves in the uprights are so placed that whilst each has a wedge and its bearing to himself, he can bring his whole force to bear upon this wedge without any fear of disturbing the wedges struck by his friendly opponent. The lower part of the press consists of a flat board upon which the wedges act, and so cause it to press upon the grapes, and the



"must," or juice of the grapes flows out at the spout prepared for it.

#### THE SHOEMAKER'S SHOP.

The two genii are sitting upon stools. The one seems to be stretching with his right hand upon a last the upper leather of a shoe, which he holds tight with his left hand. That which lies on the table is a last very similar to the last used at this day. In the closet at the right-hand side are a number of lasts. On the shelf at the back, fixed against the wall, are a number of finished shoes, very similar to our own at the present day, even to being made as "rights" and "lefts"—not sandals, such as are usually understood as shoes in use in the very early times. On the lower shelf are two vessels, which were probably used to contain the colouring matter with which shoes were dyed of different colours.

(To be continued.)

#### SANITARY ARCHITECTURE AND APPLIANCES.\*

It is sometimes urged, mostly by persons not fully acquainted with the scope and proceedings of the Social Science Association, that at its congresses matters are discussed which are not reducible to laws, doubts that cannot be determined, caprices rather than science; and that, after a great deal of talking and writing, little is removed from the cloud-land of "I think," to the permanent domain of "I know." If the proceedings of any of the departments did offer foothold to such an objector, he would not find it here, in the midst of the exhibition of sanitary, educational, and domestic appliances organised (and organised annually), in connection with the Congress of the Association. Here we are beyond theories and scarcely entertain doubts: here we have to deal only with facts, facts which concern all, facts which include life and death.

The exhibition is arranged under six headings, and it is of the third of these that I have been requested to speak. It runs thus:—"Sanitary architecture, and appliances, for outward and interior ornamentation, including cisterns, lavatories, baths, closets, filters, fountains, indicators, paving and roofing materials, ornamental bricks and tiles, garden ornaments, terra-cotta, selenitic compounds, cements, plaster, concretes, slag, stoneware and clayware, building materials, models of dwelling-houses, cottages for the poor," with an *et cetera* besides. The list is enough to take away one's breath; the idea of treating of all these subjects at one sitting is out of the question. We have here the texts, rather, for a complete course of lectures, such a course as might very fairly be imposed on the whole of the rising generation. I was about to suggest that no one of either sex should be allowed to contract marriage before following such a course, but this might prove a check to a very useful institution; we must do nothing to discourage matrimony. But I should be glad if I could hope the time will come when all persons who have passed a fair examination in such a course will be excused from paying a certain proportion, say 25 per cent., of their rates and taxes, or in some other way exonerated from obligations. It is quite certain that a much smaller amount of rates would then be required, for pauperism, crime, illness, and premature death are results of the ignorance which the truths that should be taught in such a course would greatly lessen. In sanitary matters, often, ignorance is literally death.

Knowledge in this direction is spreading, though it may be but slowly; and it is agreeable to the few who have, for long years, sought to force the public to believe in the importance of sanitary science, now to find it largely recognised and made, in fact, the war-cry and basis of a government.

Sanitary Architecture is our subject, as illustrated by arrangements and inventions in the exhibition now open. What may be rightly termed Sanitary Architecture is not too often produced. The reverse is everywhere about us—courts and narrow streets; rooms underground; houses built back to back without the means of ventilation,—damp, stuffy, and fetid,—while in residences of greater cost there are found insufficient drainage, sealed-up bed-rooms, and cisterns communicating with the drains, and so receiving and disseminating poisonous sewer gases. If we look to our public buildings, there is little less to be condemned. Our hospitals, until a few years ago, when some of us worked hard to make known the advantages, and

enforce the adoption of what is termed the *pavilion plan*, were places where patients had less chance of recovery, aided by the most skillful surgeons or physicians, than they would have had if placed under a tent in a field, with an old woman for doctor; and even now there are such evil-conditioned buildings in use. As there are also reformatories, industrial schools, and other asylums, where the children are never free from ophthalmia or some other man-created disaster.

Examine into the condition of our schools, and it will be found that many of the arrangements are destructive of health. Scores of children are crowded together without proper or indeed any arrangements for the removal of the vitiated air and the supply of pure air. The schools erected by the recently-appointed School Boards mostly show proper attention to sanitary requirements, but they are at present deficient in objects of delight. The walls of the school-room should be used to educate the eye, improve the taste, and elevate the nature of the rising generation. The education of a nation must begin in the cradle. I remember the feeling akin to disgust with which a visit to one of the school-rooms at Eton College a few years ago filled me. It was a low, dark, mouldy apartment with bare walls;—not one picture, print, or thing of beauty of any kind to be seen within it. Its aspect assisted to account for the coolness with which educated gentlemen are often heard to say, sometimes even as a sort of boast, "Oh! I know nothing whatever of art, and don't pretend to it."

Leaving for a time this question of beauty as a sanitary agent, I would notice that a feeling seems to be growing up which will eventuate, it may be hoped, in a general demand for sanitary architecture,—that houses shall be built not merely to sell, but fit to live in; with all those arrangements which make healthful and vigorous life possible. To obtain this, space is above all things necessary. Each inhabitant of a house should have at least 700 ft. cubic space—say 9 ft. by 9 ft., 9 ft. in height. Even then the air requires to be constantly changed. I have entered scores and hundreds of sleeping-rooms with little or no means for changing the air, where each inmate had not 100 feet of space. What is the consequence? A degraded condition of health,—a kind of half-life,—no energy, no power. More than half the children born in such places die before they are five years old, and the death-rate, generally, is three times or four times as high as it is amongst people living under more healthful conditions. Overcrowding, as I have for years taken occasion to urge, means want of pure air; and want of pure air means debility, continued fever, death, widowhood, orphanage, pauperism, and money-loss to the living. I name money-loss last because, strange to say, a large number of persons seem to think that of much greater consequence than all the other evils put together. But—

"Ill fares the land, to hastening ills a prey,  
Where wealth accumulates and men decay."

What is the value of material progress,—the piling up of money, the creation of property,—if the race degenerates, and the stamina of Old England be lost?

Let us now go a little into detail with the view of mentioning some of the more prominent or valuable objects in the exhibition, bearing on our part of the general subject.

The importance of a good *Foundation*, when about to build, cannot be over-rated; yet a scandalous practice of removing gravel and substituting slush and decomposing material prevails amongst speculative builders. The emanations cause serious evils. A good layer of cement concrete over the whole area ought to be insisted on, and a "damp-proof course" in the walls, just above the ground-line.

The value of *Concrete*, not merely for foundations, but as a building material in certain localities, is very great. It was my privilege, by an Essay in student-days, to assist mainly to bring it into use. Much abused in print, in more than one quarter, for what I foretold of it, it is satisfactory to find those views confirmed. Concrete is now used as a building material to a great extent. A large building in this material is being carried up in Church-street, Brighton, at this moment.

The *Drains* of our houses are often ill-formed and of permeable material, not seldom laid without proper fall, even with fall the wrong way, so that the solid matter remains in them.

The condition of the lower part of many houses, if they were examined, would startle the country.

*Traps* (proper expression, "Trap,"—"Trap to catch a fever") are for the most part delusions. The connection of waste-pipes from cisterns, and pipes from sinks, with drains, has produced deadly results, the presence of an ineffectual trap lulling suspicion. There are specimens in the exhibition of improved traps. Greig's has many advantages. It is formed so that the solid matter immediately passes

away, holds sufficient water to seal the end of the soil-pipe, and has attachments for ventilating tubes, as also have the others. This is the one great improvement which lately has been well laid hold of by the public,—the necessity for the ventilation of the house-drain.

*Walls* should resist moisture, and to do so should be formed of impermeable material. Dampness is costly—the cold produced requiring more firing—to say nothing of damage to health.

The application of pottery in the manufacture of cisterns is most desirable, the continued use of lead being bad in the extreme,—for soil-pipes also. Referring to *cisterns*, I would refer to the frightful condition of many,—constantly the cause of illness,—as I could prove by cases within my own knowledge. Connexion with drains, by means of waste-pipe, is the main cause, especially when the cistern is covered. This connexion should never exist. Cisterns should be often cleaned out. . . .

Uninteresting as some of these matters may seem to you individually, they go to make up a whole of supreme importance—the production of healthful, happy, homes. The largeness of the interests involved, and the enormous extent to which good or bad arrangements in house-building will apply, may be shown by a few figures. In the past year, 1874, there were built in London alone 7,800 houses, and 3,500 more were in progress. If we take as an average cost per house £300, and those in progress at half that sum, we find there were, in that year, £2,865,000 spent in house-building in the metropolis alone,—and this is much under the mark. The length of new streets and squares built in London within the last twenty-five years is found to be 1,181 miles; and if we give 18 ft. frontage to each house, and retain as the average cost per house £300, we find an expenditure of close upon 104 millions sterling.

Looking a little further—that is, taking all England and Wales—we have built dwelling-houses within the last ten years to the value of more than 220 millions sterling. If the population continue to increase as it has done, there must be more than a million of additional houses erected within the next ten years, at a cost of at least 300 millions sterling. These figures are too large for the mind to grasp, but they will serve to show you how enormous is the field over which good or bad building extends, and how important it is that these immense sums should be spent in the manner best calculated to conduce to the health, progress, and happiness of the people of this kingdom.

#### BOOKS RECEIVED.

*The Boy's Algebra, including Quadratic Equations, &c.* By James Cahill. New edition. Dublin: John Falconer, Sackville-street.

THIS little work deserves commendation, and in commending it we testify to the good service performed by the author in placing a really useful book in the hands of our youth, divested of difficulties which have hitherto scared the majority of boys at school, and caused them to avoid, if opportunity offered, the study of algebra. We may say, in the words of the author's preface, "Boys who have acquired a fair knowledge of arithmetic are quite capable of learning algebra when it is explained to them in an agreeable style." In this little work they are presented it in a pleasing style, and in a manner to encourage industrious beginners. We are glad to hear that the work has been adopted by many experienced teachers as a text-book for their classes. The arrangement is somewhat different from that to be seen in several of the older and larger works. It begins with the rudiments as in arithmetic, and proceeds naturally by easy courses; but those preferring otherwise can still commence with equations, and this is followed by numerous easy problems. Every portion of the science of algebra usually taught, is here presented and illustrated with examples and exercises. In the appendix there is a large collection of questions selected for examination papers, and there are several sets of bank, college, and civil service questions, which cannot fail to be useful to candidates preparing for a university examination or for public appointments. We can honestly recommend the work of Mr. Cahill to principals and teachers at schools, and to young men outside, of neglected or imperfect education, aspiring to professional pursuits.

\* From a lecture by Mr. George Godwin, delivered at the Social Science Congress, Brighton.

## THE O'CONNELL MONUMENT.

At the last meeting of the O'Connell Committee, held at the Mansion House, further evidence was afforded of the bad management that has characterised the conduct of affairs all through. The secretaries were absent, and there was no information to be obtained as to the date when probate to Mr. Foley's will may be expected. The artist is dead about fifteen months, and for all the public know with truth to the contrary, the work remains in the same unfinished condition as when Mr. Foley last touched it. Sir Dominic Corrigan was fully justified in condemning the neglect that has been evidenced on the part of the committee and others in connection. A discussion having taken place as to whether a plain or a draped figure of O'Connell should be chosen, it was moved by Sir Dominic Corrigan "That the two statuettes of O'Connell—the draped and the simple figure—be exhibited in some public place in the city without delay, and that a meeting of the subscribers be called within fourteen days to determine the figure which should be adopted for surmounting the O'Connell monument." The two statuettes are to be exhibited in the Mansion House, and erected on pedestals, so that a fair conclusion may be arrived at as to which is the most fitting figure for adoption.

## CARNDONAGH R.C. CHURCH.

VARIOUS works of improvement have been carried out at this building, which was erected in 1826. A new tower measuring 17 ft. x 14 ft. on plan is carried up in three stages to a height of 60 ft. to top of parapet, above which rise the pinnacles. On west face of tower is an Irish cross. Mr. Wm. McElwee, of Derry, is the architect; Mr. Colhoun the contractor. It is hoped that other works contemplated by the architect's design may be commenced as soon as funds are provided.

## INSTITUTION OF CIVIL ENGINEERS OF IRELAND.

A GENERAL meeting of this body will be held on Wednesday evening, 3rd inst., at eight o'clock. Mr. Charles P. Cotton (past president) will read a paper on "The Castleisland and Gortalea Railway." It will be in continuation of a former paper read by him on "Light Railways."

## SANITARY NOTES.

**Dublin.**—The City Main Drainage question was again before the Municipal Council on Wednesday and Thursday last. The debates were conducted in the usual gentlemanly and parliamentary style, and the "Fathers" retired well pleased with the progress made towards forwarding the work.

**Drumcondra.**—Mr. Robinson, Local Government Inspector, opened an inquiry on Thursday relative to the proposed sewerage scheme for this district. The plans prepared by Mr. James Boyle, C.E., have been objected to by the inhabitants of Clontarf and Fairview, on the grounds that the discharge of the sewage at the mouth of the Tolka would increase the already unbearable nuisance existing at that point. The inquiry will be resumed to-morrow at twelve o'clock at the Board Room, North Dublin Union. We will return to a discussion of the subject in our next issue, and point out what are considerable objections in the scheme.

**Letterkenny.**—A water supply to this rising town having been decided on by the board of guardians as the sanitary authority, the services of Mr. P. A. Doyle, C.E. were secured; he has recommended utilising a splendid spring some 2½ miles from the town, and supplementing its discharge by a catchwater drain encircling the adjoining hill. The works will consist of a reservoir to contain 30 days' supply, a relief tank, and some 3½ miles of piping. Estimated cost £2,200, under which sum they have been contracted for.

**Nenagh.**—The sewerage of this town being in a very unsatisfactory state, the guardians, as the sanitary board, advertised for plans of the necessary works of improvement thereof, and selected those by Mr. F. A. Doyle, C.E., Kingstown. He has furnished a very ample and practical report. He recommends the construction of over 5,000 yards

of main sewers, at an estimated cost of £4,110. As the question of pollution to the Nenagh river may arise, he recommends Dr. Anderson's plan of deodorisation so successfully carried out in Coventry.

**Kingstown.**—The laying of the water-pipes through the newly-added district is now completed, and the water supplied at high pressure. The length of mains laid is nearly three miles, with all necessary valves and hydrants, and two public fountains have been erected. Kennedy's patent water-meter, 5 in., has been for some time in use as a cheque on the Corporation meter; it will pass 50,000 gallons per hour. All these new works have involved an expenditure of £1,400, and have been carried out from the plans and under the superintendence of the town surveyor, Mr. F. A. Doyle, C.E. It is contemplated to expend £10,000 during the coming season on internal sewerage. Some heavy works of the kind through the granite were executed this year, and a loan of £20,000 is being sought for, under the Local Government Board, to carry out the long-projected intercepting and outfall sewers according to the plans prepared by the town surveyor. Arrangements have been made to continue the asphaltting of the footways. The lighting is also being attended to. This township is making rapid strides—its low death-rate testifies as to its clean bill of health.

## HOME AND FOREIGN NOTES.

**RECOGNITION.**—Mr. Charles H. Brien, of the Architect's office, Board of Works, was presented, at a meeting of the Civil Servants held last week, with a testimonial in recognition of his labours to benefit the status and to better the condition of the workers in the Irish Civil Service.

**THE BELFAST CIRCULAR RAILWAY.**—A preliminary meeting was held in the Royal Hotel, Belfast, on Wednesday, to consider this project. A secretary was appointed. If the project is carried through, on the circular line principle, Belfast will be in a "ring" all the year round.

**CONCRETE ROOFS.**—Mr. Tall, the well-known patentee, writes in *re* Portland cement roofs which he has erected at Camberwell. He says he has built "the greatest masterpieces of concrete in the kingdom," in the above district. "I may mention that the roofs are groined. The cost is not more than one-half of a timber and slated roof, with the venture to lofty room and a fire-proof roof, and I advantage of a say everlasting duration." So much for concrete.

**THE "O'CONNELL MONUMENTS" IN AMERICA.**—The *Irish World* (New York) says:—The "Irish-Americans of St. Louis are thinking of erecting a monument to O'Connell. Mr. Thomas Farrell, a sculptor of Dublin, has sent them a design, the estimated cost of which would be 32,500 dolars." [If favoured with the order, we trust our fellow-citizen will not keep the St. Louis folk waiting for ten years.] The same journal, in a later issue to hand, says "The design submitted by Mr. Michael J. O'Brien, a rising young sculptor of Montreal, has been accepted by the 'O'Connell Monument' committee. It will be placed in Victoria-square. The work will be commenced without delay. Its cost will be 10,000 dolars."

**"STRANGE IF TRUE."**—Our contemporary the *Irish Times* states, on the authority of a correspondent, that the floods that inundated Drumcondra is attributable to "defective sewerage." Our correspondent might as well attribute the cause to a defective tooth. When will folks discriminate between a sewer and what it carries, and a wind-pipe and what it swallows?

## TO CORRESPONDENTS.

**IRISH ARCHITECTURAL ASSOCIATION.**—We have seen no programme of the list of papers intended to be read during the next session of this body. We publish the lists relating to the Royal Institute of British Architects and London Architectural Association. We do not know what to say of the Royal Irish Institute, whether it is alive or dead, or in a Rip Van Winkle slumber.

**A GAS CONSUMER.**—Read the "Gas Consumers' Circular," and you will understand the "situation."

**A PROVINCIAL BUILDER.**—Try concrete; we think it will answer your purpose and give satisfaction, if properly manipulated.

**CITIZEN.**—The new Main Drainage (Amendment) Bill will, of course, be pushed on. The motion, you have seen, was unanimously carried, as the phrase goes, by a majority of two at a "whipped up" meeting. With a Government representative in the council and a Government Auditor at the books, there will be a sharp look out kept, that is, supposing the present scheme is prosecuted.

**CLERK OF WORKS (Belfast).**—The notes would be useful if sent while the matter is fresh.

**INSTITUTION OF CIVIL ENGINEERS (England).**—A notice of matters and papers in connection with the ensuing session of this body is held over for want of time.

**W. R. (London).**—Sanitas—C. F.—O. B.—A. H. (Glasgow)—S. and Co.—Artisan, &c.

Some articles are held over for want of space.

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*It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.*

*Correspondents should send their names and addresses, not necessarily for publication.*

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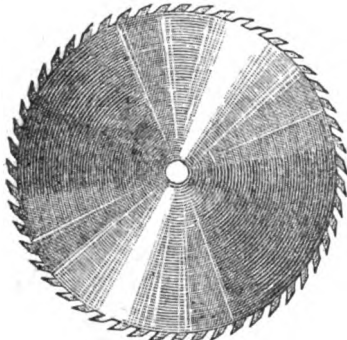
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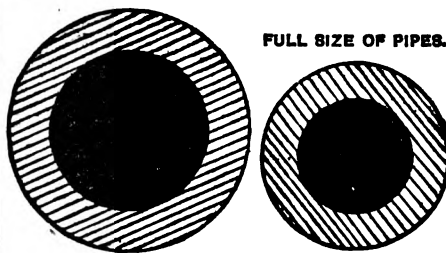
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# The Irish Builder.

VOL. XVII.—No. 382.

## *The Main Drainage Scheme, and City Improvements.*



WE have hitherto for several years expressed our opinions openly and honestly on the proposed Main Drainage scheme devised for this city. We have pointed out its obvious defects, and the extravagance that its promotion has led to, even in its preliminary stage. The law and parliamentary costs of the bill have been great; and, added to this, there has been the payment of the staff for some years appointed to carry the work out, though up till the present little work has been executed, save some subsidiary sewer construction in view of the Main Drainage proper, whenever that work might be commenced.

Our object on the present occasion is not to speak in harsh terms of any of the members or officials of the Corporation. From one point of view, at least, they are to be pitied as well as blamed. The loan of half a million for which they have sought is refused on the security they have offered, and they are unable to offer more without altering the entire rating of the townships. The Lords Commissioners of the Treasury seem to be fully informed of the position of Dublin in regard to taxation. After considering the answers, interrogatories, and other documents forwarded to them from the Corporation, the Public Works Loan Commissioners hold the opinion that the statement supplied by the Corporation of the assessments made by them for various purposes during the last three years, and of the valuation of such assessments, discloses that the amount required to be raised by assessment involves the levying of unusually high rates upon the valuation set forth for assessment within the existing limits of the area rateable for the repayment of the proposed loan. They could not honestly come to any other conclusion. This was foreseen on this side of the water, and we and others pointed out long since that the prosecution of the Main Drainage scheme in its present proportion would inflict a terrible burden upon the city by further impoverishing it, and leading to general bankruptcy on the part of our traders.

Were we to study from a selfish point only the professional interests we represent in this journal, we would not, of course, care how gigantic might have been the Drainage scheme; but in a case such as the present—knowing, as we do, the exact position of this overburthened city,—we independently go in for the common weal. The Corporation are not in a position at present to improve the security offered by them, and we are pleased they have come to the conclusion of telling their lordships of the Treasury that it cannot be done; and the result will be, of course, that the loan will not be granted.

What will the Corporation do next? They apparently intend to go on with their hopeless amendment bill, believing that they will

eventually succeed in extracting the coveted loan "by hook or by crook," or else by some form of a surrender of their powers or dignity as a municipal body. We trust, however, they will see their mistake, and retrace their steps while there is time.

Independent of the prosecution of the Main Drainage scheme, there are ample powers and means in the hands of the Corporation to undertake and perform necessary works of improvement and of a sanitary kind which are urgently called for. The purification of the Liffey can be commenced, and even intercepting sewers could be constructed as an instalment of a well-devised sewerage scheme that may be completed at a future time. The Liffey must be freed from pollution as far as possible; and other local bodies outside the city who at present make use of the Liffey or its tributaries, must be compelled to utilise their own sewage. The Corporation itself can utilise the sewage of the city to a great extent, and thus save the river and the harbour from continued pollution. They will argue, of course, that this is not possible, and that there is no remedy save in the carrying out of the gigantic scheme, to which a certain section of the Corporation seem to be wedded.

The public abattoirs and markets questions can be taken up once more. On the former, Mr. Parke Neville, the Borough Engineer, brought up a useful report a few years ago. The old and existing markets for various uses, as we pointed out over and over again for years, are a positive disgrace to this city. They are dilapidated, dirty, and narrow, and all sanitary requirements seem to be ignored in their management. Apart from corporate action in this matter, some of our wealthy merchant princes, for instance the Messrs. Guinness, Pim, &c., could do no better work than expending a few thousand pounds in the construction of a market or two on well-selected sites, north and south of the city. They would thereby confer a great public benefit, add to the improvement of the metropolis, in addition to having a good paying property. At any time afterwards, if it was desired, the Corporation could take over this property on paying the respective proprietary a fair price for the estate. We do not, of course, expect that private individuals will undertake public improvements that should be undertaken by the Municipal body; we only point out what could be accomplished if a desire or disposition existed for performing useful work apart from corporate action.

The construction and repair of streets and roads through the city, and the opening of new thoroughfares through neighbourhoods where dirt, dilapidation, and chronic illness are ever rife, is a matter that calls for immediate attention. The provisions of the Artisans and Labourers Dwellings' Bill, passed last session, can be availed of, and valuable and necessary work commenced.

This brings us to the question of Dangerous Structures, a subject of more than ordinary interest in Dublin at present, in consequence of a number of sad accidents of late by the falling down of wretched and rotten old structures. It may be argued that if action is taken to effect improvements under the act alluded to, how are the poor to be provided for? At first sight there certainly appear to be some difficulties in the way; but the City of Dublin, unlike modern London, is small in extent, and the dispossessed will not have to remove long distances

from the centre of their employment. Besides, in Dublin at present, there is a very large number of unlet tenements, north and south. Ground also in Dublin, compared with the City of London or outside the city, is cheap. It would be well, and is, of course, indispensable, that wherever a large number of the poor or working classes are dispossessed by the demolition of tenement house property, provision should be made beforehand for their housing. The act provides in case of a public body or railway company having to demolish the houses of the poor, that they must make provision for the dispossessed as near as possible to the centre of their employment. If we suppose the projected new street from Cork-hill to Christ Church-place was about to be carried out immediately, the tenement occupiers in Castle-street and its courts would certainly feel some inconvenience if not hardship; but there would be not much difficulty on their part in procuring new tenements, not distant, and even better than those which they occupy at present.

If the Corporation, through the Public Health Committee and its sanitary staff, would only enforce the law, and compel the landlords of tenement property to keep their houses in a proper state of repair, and provide for the necessary sanitary wants, the poor tenement occupiers would never fear the removal from one street to another, even if it was a little distant. At present, however, when the poor are dispossessed through the carrying out of improvements, they are often obliged to take refuge in tenements worse than those they were forced to leave.

In the matter of "Dangerous Structures" we are glad to see that the Corporation are at last moving in the matter. The Law Agent of the Corporation and the Borough Engineer have already prosecuted and proved in some cases, and orders were made by the magistrates to pull down or to otherwise put in secure condition the houses reported upon. We think in the majority of instances the wiser plan would be to take down these old structures, for several that we have noticed during the year are rotten from foundation to roof, and the putting of new fronts to them is a dangerous deception.

In the matter of new houses, as much if not more vigilance is required on the part of the Municipal Sanitary Authority as in that of the old. A Dublin Building Act, or an act applicable to Dublin, is absolutely required to put a stop to the practices of speculative or other unprincipled builders. Bad foundations, bad drainage or no drainage, bad materials, rubbishy mortar, and green and sappy timber of insufficient scantling—this is common here as well as in the suburbs of London and other principal English cities and towns. Constant inspection is needed on the part of the Sanitary Authority to see that rooms are of the proper dimensions, that sufficient cubic space has been allowed, and that every sanitary requirement is provided in conformity with the Building Act.

Mr. Parke Neville, the Borough Engineer, has hitherto, we believe, spoken in favour of such an act to meet the wants of this city, and we understand it is his intention to press the consideration of the subject on the Municipal Council. He would perform good work by succeeding in the matter. When any practical and useful work is earnestly foreshadowed and attempted by our Corporation, we are ever ready to back it up with

our advocacy; but, we regret to say, too often have we had sound and substantial reasons for opposing the projects of our Corporation.

We are not at all sanguine in the hope that the idea of the big Main Drainage scheme will be given up, so far as a number of the members of the Corporation are concerned, who appear to have staked their chances on its prosecution. This aside for the present, we would earnestly counsel the Corporation to bestir themselves in the matter of the sanitary improvement of the city. By bad management the condition of the City Estate is in a rather desperate state, and has strongly favoured the belief among many of our citizens that the Government would be forced to put the Corporation in commission.

We may return to the subject of urgent public improvements in another paper, and to the discussion of other matters which we have not time to enter upon now.

### INSTITUTION OF CIVIL ENGINEERS (ENGLAND).

THE list of the subjects for papers during session of 1875-6 for which, if prepared and approved of by the council, premiums will be awarded, include among many others the following:—

On Portable Apparatus for Gauging the Materials, and for the Expeditious Mixing of large quantities of Portland Cement Concrete.

On the Value and Strength of the different Materials used for making Concrete: with Experiments on the Proper Proportions of the various ingredients, and of the Water, whether salt or fresh, to produce the Strongest Mixture.

On the Application of Steam Machinery for Excavating, and the Cost as compared with Hand Labour.

On Stone-quarrying and Stone-working Machinery.

On the Construction of Warehouses and other buildings for Storing Goods, with the Special View of resisting Fire, and on the relative merits of brick-work, iron, and timber for that object.

On Modern Methods of Constructing the Foundations of Bridges.

On the Design, generally, of Iron Bridges of very large span, for Railway traffic.

On the Water Supply of Towns, including a description of the sources of supply, of the different modes of storing, collecting and filtering water, of the various incidental works, of the distribution to the consumers, and of the general practical results.

On the Constant Service of Water Supply, with special reference to its introduction into the Metropolis, in substitution for the Intermittent System.

On the various Modes of Dealing with Sewage, either for its disposal or utilisation.

On the various descriptions of Pumps employed for raising Water or Sewage, and their relative efficiency.

On the Ventilation and Working of Railway Tunnels of great length.

On heavy and light Wood Working Machinery.

Among the premiums awarded during the session of 1874-5, were:—

A Telford Medal, and a Telford Premium, to George Frederick Deacon, M. Inst. C.E., for his Paper "On the Systems of Constant and Intermittent Water Supply, and the Prevention of Waste, with special reference to the restoration of Constant Service in Liverpool."

A Telford Premium to Jules Gaudare, C.E., of Lausanne, for his "Notes on the Consolidation of Earthworks."

A Watt Medal, and the Manby Premium, to John Clarke Hawkeshaw, M.A., M. Inst. C.E., for his paper on "The Construction of the Albert Dock at Kingston-upon-Hull."

A Telford Premium to Charles Colson, Assoc. Inst. C.E., for his "Details of the Working Tests and Observations on Portland Cement, made during the Construction of the Portsmouth Dockyard Extension Works."

Among the student prizes were:—

A Miller Prize to Arthur Ernest Baldwin, Stud. Inst. C.E., for his paper on "The Design and Construction of Lock Gates."

A Miller Prize to James Charles Inglis, Stud. Inst. C.E., for his paper, Experiments on Current Meters and their Bearing on the Hydraulics of Rivers."

A Miller Prize to William Patterson Orchard, Stud. Inst. C.E., for his Paper on "Hydraulic Calculations relating to Water Pressure and Walls to resist it, Gauging of Water, the Flow of Water in Open Channels and in Pipes."

A Miller Prize to John Charles Mackay, Stud. Inst. C.E., for his paper on "Concrete."

It will be seen from even the above greatly abbreviated list of subjects for papers, and premiums awarded, that the Institution of Civil Engineers, England, is progressing with the requirements of the age, and anticipating and providing for the wants of the future.

### THE ARCHITECTURAL ASSOCIATION OF IRELAND.

THE opening meeting of the session 1875-6 will be held on Thursday, 25th inst., when the President, Mr. Thomas Drew, R.H.A., F.R.I.B.A., will deliver the Inaugural Address.

General meetings will be held each month during the session, which it is desirable should be largely attended.

The classes of Design and Construction (which heretofore met on alternate Thursdays) will now meet on the same evenings twice a-month, the business of one class to be taken up after that of the other. The committee hope by this arrangement to secure a good attendance.

The following is a list of papers to be read at the ordinary general meetings:—

Nov. 25.—President's Address.

Dec. 30.—Working Drawings. By J. J. O'Callaghan.

Jan. 27, 1876.—Hints from American Practice. By W. Fogerty.

Feb. 24.—Paper by Sandham Symes.

March 30.—Earth-Closet System. By J. H. Owen.

April 27.—Two Cathedrals—Canterbury and Amiens. By C. H. Brien.

May 25.—Paper by F. Morley.

The prizes for last session have been awarded as follows:—The prize in Class of Design, to W. J. Fennell. For best set of measured drawings of any building in the United Kingdom up till the eighteenth century, to Benjamin P. Shires, Leeds. For the best design for a town church, to J. H. Martindale, Kendal.

The officers for this session are:—

*President*—Thomas Drew, R.H.A., F.R.I.B.A. *Vice-President*—Wm. M. Mitchell, F.R.I.A.I. *Committee*—C. J. Allen, Henry C. Brett, Daniel J. Freeman, G. C. Henderson, Thos. H. Longfield, J. J. O'Callaghan, W. P. O'Neill, A. W. Robinson, John L. Robinson. *Treasurer*—T. H. Longfield. *Librarian*—C. J. Allen. *Auditors*—H. Oldham, J. C. Wilmot. *Hon. Secretaries*—Henry C. Brett, A. W. Robinson.

### BELFAST ARCHITECTURAL ASSOCIATION.

THE opening meeting of the fourth session of the above association was held on the evening of the 8th instant, at the Museum. The attendance was large, it having been previously announced that the meeting would be open to the general public.

Mr. W. R. JACKSON filled the chair.

The chairman, in the course of some brief remarks, said it must be exceedingly gratifying to the officials of the Belfast Architectural Association to find that it had entered on the fourth year of its existence, and that it had in the space of three years arrived at a certain amount of success—in fact, an amount of success they could not have anticipated. There was a bright future before them, not only for themselves, but for their successors. They saw it already developed in a great number of designs that had recently been produced and executed in the town of Belfast. They saw the tone of architecture in Belfast and the North of Ireland improving year after year, and, as he said before, Belfast was a young town, and they were a heterogeneous race; but although antagonistic to a great extent in some opinions, they were joined in the holy bond of union in respect to architecture. A gentleman was to address them that evening, of whom it was not necessary for him to say a single word—they all knew him, and appreciated him.

Mr. R. M. Young (hon. sec.) read the list of prizes offered for competition, and also the programme for session 1875-6.

For the best copy of a good architectural drawing (open to pupils only)—1st, £2 2s.; 2nd, £1 1s.

For the best set of measured drawings of a building, subject to approval of committee—1st prize (given by R. Watt, C.E.), £2 2s.; 2nd, £1 1s. (given by committee).

For the best sketch drawing of any building different from previous years—1st prize (offered by R. Young, C.E.), £2 2s.; 2nd (by same gentleman), £1 1s.

For a design in colour, £1 1s.

For the best paper read during the session at the evening classes of design. 1st, £2 2s.; 2nd, £1 1s.

For the best series of sketches exhibited at evening meetings for design. 1st (offered by J. C. Marsh), £1 1s.; 2nd (offered by F. W. Lockwood), 10s. 6d.

Wm. Henry Lynn offers a prize of £2 2s. for the best sketch on a subject which he will announce in due time.

Prizes are also offered by Mr. Joseph Bell and Mr. Thomas Turner.

A number of new members were enrolled.

Mr. T. Hevey then read his paper on "Church Building," which we print on another page.

Mr. Vere Foster expressed the satisfaction with which he had listened to the lecture, and hoped the association would be the means of fostering a taste for architecture among a greater number of the young men of Belfast, in which place there was ample room for exercise of talent. He also recommended, among other things, an improvement in school architecture, and expressed his intention of offering prizes for competition on practical architecture of that description. The speaker concluded by moving a vote of thanks to the lecturer.

The Rev. J. O'Laverty, P.P., said there was no other class of buildings which seemed, generally speaking, less adapted for the purposes for which they were intended than church buildings. It was observed that in churches generally the ornamentation was on the outside, while the interior was altogether neglected. In Rome, however—the mistress of the world in architecture—it was the inside of the churches which was ornamented, while the exterior was very plain. Speaking of carvings and inscriptions, he said that modern art seemed a long way inferior to that of centuries ago. It was now the general rule that inscriptions after fifty or sixty years became illegible, though on stone which was thought to be exceedingly durable. The carvings on Downpatrick Church, which was built in the time of Sir John de Courcy, and at Greyabbey, built soon after, were quite perfect still. He believed there was much of this to be attributed to the stone used in the work, materials that were taken from the neighbourhood of the buildings lasting much longer than those procured at a distance.

Mr. Watt, in seconding the vote of thanks to the lecturer, expressed a hope that Mr. Hevey should be asked to follow up the subject on future occasions.

The vote of thanks having been passed with acclamation, and

Mr. Hevey having replied,

On the motion of Mr. J. J. Murphy, seconded by Mr. Young (hon. sec.), a vote of thanks was passed to the chairman for presiding.

### ABOUT "THE HON. IRISH SOCIETY."

#### SECOND ARTICLE.

AFTER the formation of the Irish Society, and the division of the estates into twelve portions to suit the twelve companies, the portions inspected by Pynnar (see Survey) consisted of 3,210 acres each, but there was a total of 200,000 acres, exclusive of the towns of Coleraine and Londonderry, and the lands, woods, fences and fisheries belonging. These not being susceptible of a division were retained by the Irish Society, the rents and profits being accounted for with the twelve companies who had each contributed

£3,888 6s. 8d., or, in all, £40,000, which had already been disbursed upon the Plantation. About this time James granted a charter to Coleraine, but having been informed that the Plantation entrusted to the company was making but poor progress, he directed Deputy Chichester to institute inquiry and report to him thereon. Sir Joseph Bodley being intrusted with the inspection, reported very unfavourably as to the progress, and immediately James issued a manifesto stating that he would seize into his own hands all lands in which the terms of the Plantation should not be performed before the last day of August, 1616.

In the "Bye Laws" of the Corporation, quoted in our first paper, the act in relation to electing a governor, &c., the Court of Assistants should have been printed 1612 instead of 1611. We shall now cite a few more of these bye-laws:—

—£1,000 more to be raised by companies for Plantation in Ireland, and divisions to lie together.—April, 1618.

—Report of Mr. Alderman Smithes and Alderman Springham, about Irish Plantation.—8th November, 1618.

—Admission of lands in Ireland by lot.—Same year.

—Report of Mr. Mathias Springham on his return out of Ireland.—Same year.

—£7,500 to be levied for the Plantation of Ireland.—11th January, 1614.

—£5,000 to be levied off the companies for the Plantation in Ireland.—18th October.

—Messrs. Proby and Springham's report on return from Ireland.—21st October.

We find about this time the corporation had raised a loan for James of the sum of £100,000. In 1619 Nicholas Pynnar superseded Sir Joseph Bodley, and in his survey of the Ulster Plantation he represented Coleraine to be in a very bad and unimproving condition. The town was dirty and thinly inhabited, and if even the ramparts were capable of defence, there were not men sufficient to man the sixth part of them. It is also stated there were but three houses building at the time. Sir Arthur Chichester, in 1622, granted his interest in Lough Neagh to the Irish Society for ever at the yearly rent of £100; and in the same year Sir Thomas Phillips made another survey of the Plantation in the hands of the Society, and the London Companies, with a sinister intention. In 1624, the year preceding James's death, the whole of this property was sequestered. The wily monarch, no doubt, intended to have sole possession and to seize it into his own hands on a plea of breach of contract.

In one of the bye-laws for 1624 we have—

—Several propositions and answers between the Lords of the Privy Council and City in relation to Ireland.

James professed liberality first in the distribution of the confiscated estates, but his aim was indirectly to make them a source of profit to himself. He exhausted his exchequer by prodigality to his favourites and his other various excesses and extravagances, and no subterfuge or scheme was too low or mean for him to resort to for the purpose of raising or exacting money, often under the pretence of a loan, which he never intended to pay, even if he reigned twice as long.

One of James's schemes in 1619 was to institute a new order of nobility, to rank between a knight and a baron, to be styled a baronet, and confined to 200 gentlemen. The cost of the patent was £1,095, and this was estimated at the charge of keeping thirty men in Ulster for three years at eightpence a-day, which was paid into the exchequer on the delivery thereof. This money replenished the exchequer to the extent of £218,000, but neither money nor men found their way to Ireland.

We will not here enter into the dark catalogue of crimes that took place during the last years of James's reign, by which Protestants and Catholics alike suffered, and had their properties confiscated under the pretence of defective titles. The most daring acts of spoliation took place; properties possessed for centuries—as far back

as Henry II.—were declared bad in law, and Chichester and other members of the Irish Government carried out James's will with a vigour and a vengeance. The king and his advisers and abettors robbed and punished right and left, and the class of men called "discoverers" of defective titles did their nefarious work with activity and profit to themselves.

The "Irish Society," or the Corporation of London, no more than native Irish proprietors, have no reason to remember James, save with the most deadly feelings of hatred. He was a bad and selfish king, and it was his determined resolve, before death put an end to his career, to confiscate the Plantation he created himself.

Charles I., who ascended the throne in 1625, acting on the suggestions of his predecessor in respect to the Ulster Plantation formed by the London companies, resumed the sequestration of Londonderry, and the rents were levied for the king's use. The letters patent granted by James were in 1637 cancelled, and both seized into the king's hands, and in 1639 commissioners were appointed to make grants of these lands as well as those belonging to the companies. During the reign of Charles I. the journals of the corporation are full of matters relating to the Irish Plantation—loans, negotiations, contracts, bye-laws, &c.,—but we shall only allude to a few:—

—Articles of Privy Council relating to Irish Plantation, and city answers thereto.—27th May, 1629.

—Petition to his Majesty to make election of a governor and deputy-governor of Irish Plantations.—17th May, 1636.

—Report of committee touching the great and important business in question between his Majesty and the city, approved of, and committee were empowered to wait on his Majesty with the same relating to Irish lands.—23rd June, 1636.

Several reports follow during this year and the following year in relation to the same.

—King's acceptance of Irish lands, customs, fishings, &c., embraced.

—Confirmation of charters by inspectors, and other articles if agreed upon between his Majesty and the city.—31st March, 1638.

Charles having returned from Scotland in 1641, and being entertained by the City of London, directed that their Ulster estates should be restored to the Irish Society and the City Companies; also the Parliament revoked the sentences of the court, and of the Star Chamber, and decreed that the property should revert to those in possession when it passed; but the civil war of 1641 intervening prevented this from being accomplished. At the conclusion of the civil war the Irish Society and the companies came again into possession, and the former renewed the leases in Derry and Coleraine. Cromwell confirmed them in 1656, in the same rights they enjoyed under the letters patent of James I. The Corporation of London obtained a new charter on the restoration of Charles II. in 1662, and under this the Irish Society has acted down to the present.

In the matter of customs, tonnage, and poundage granted to Coleraine and Londonderry under this charter, it was deemed prejudicial to the interests of the Crown to carry it into effect, so the "Irish Society" accepted £6,000 as compensation for the same, £2,000 of which was then paid.

In the rebellion of 1641, the City of London sent four ships to Londonderry with provisions, clothes, and munitions of war, and the twelve companies sent each two pieces of ordnance, in addition to twenty pieces of artillery contributed some years previously; and, in 1689, when Londonderry was besieged, the Corporation of London, through the Irish Society and companies, contributed money and used their influence in every direction in the interest of Derry, and for the safety of their estates.

It is not our purpose to enter into detail about the siege of Londonderry, and the part the Irish Society played throughout that period. In 1690 the Irish Society and the

City Companies contributed £100 each towards repairing the injuries sustained by the city during the siege, and in 1698 the society served an ejectment on the Bishop of Derry for the resumption of the 1,500 acres of which it had been deprived in the reign of Charles I., and it obtained possession of them the following year. The bishop, however, appealed in 1697 to the Irish House of Lords, from the decision of the Chancellor, when an order was obtained for establishing him in possession. This was opposed by the sheriffs, who were taken into custody and sent to Dublin. The bishop, in 1708, compromised this suit by accepting £250 a-year, and the fee of the bishop's house and gardens to him and his successors from the society, who then forthwith resumed possession of the lands in dispute.

A few years later disputes between the Corporation of Londonderry and the Irish Society began to crop up, and have continued more or less down to the present day. In 1736 the society threatened to stop the annuity of £90 10s., which the corporation received out of the quarter lands; and in 1739 the society ruled that only four honorary freemen should be elected by the corporation. One of the causes of this dispute was an obnoxious bye-law, but the Corporation of Derry having repealed this in 1740 the society resumed the payment of the £90 10s. The Irish Parliament by votes in 1765-7 and 1771 repaired the quays at an expenditure of £4,590 15s., and in 1773 was about to pass a law against absentee landlords, which greatly alarmed the Irish Society and the companies, who prepared to oppose it. At the commencement of the Volunteer movement the society contributed £100 towards a volunteer body, and in 1789 the society granted the Corporation of Derry a lease of the tolls of the ferry in perpetuity, to enable it to borrow money to build the proposed bridge across the Foyle. This was the wooden bridge erected by Mr. Cox, a native of Boston, U.S. It was constructed in America and brought over, and opened in 1791.

Walker, who defended Derry, has had his monuments and other memorials; but Michelborne, who certainly contributed no less than Walker to the success of the siege, has had little tribute paid to him during life or since his death. King William advanced him to the rank of colonel, but poor Michelborne applied in vain to the Irish Society to recommend him to the monarch to appoint him as governor of Culmore Fort. This they refused to do, offering as an excuse for their peremptory refusal that no fort would be needed there in future. The records of the society show that they subsequently agreed to pay a governor £200 a-year, allow him 300 acres of land allotted to this fort, and continued to pay down to our own day.

Let us see how stood the case of Derry since the Plantation of Ulster. For 200 years the corporation of this city had been nothing more than the nominal creation of the "Irish Society;" and though it had a charter granted by James I., and confirmed by Charles II., the corporation had scarcely any power. "The mayor, commonalty, and citizens of the City of Londonderry," as it was styled, comprised a mayor, recorder, twelve aldermen, twenty-four burgesses, two sheriffs (who were also sheriffs of the county), and a chamberlain. This municipal body, with its complement of freemen, returned to Parliament the nominees of the "Irish Society," and "free and independent" electors were nowhere. The spirit of the Municipal Corporations Reform Act worked a change in the above constitution, and the "Irish Society" had to relax its authority over the Derry Corporation. Since this municipal reform took place, upwards of thirty years since, the disputes between the Corporation of Derry and the Irish Society are more frequent than ever. How the case stands at present between the Corporation and inhabitants of Derry on the one hand, and the Irish Society on the other, we will tell in another paper.



THE LITERATURE  
OF GOTHIC ARCHITECTURE  
IN IRELAND.\*

IN his chapter on "Early Irish Art," Mr. Brash enters into an inquiry as to the probable date of the introduction of sculptured decoration into Irish architecture, and he traces the passion for ornamental decoration in this country back to a very remote date. The sepulchral chambers on the Lough Crew hills and the great tumulus at New Grange afford very early evidence of sculptured ornamentation in pagan Ireland. The ornamental designs illustrated in the Book of Kells are alluded to; and, as Mr. Brash proceeds, he quotes the opinions of eminent authorities, British and foreign, on the early and wonderful development of Irish art. Among the authorities cited are: "Illuminations and Facsimiles from Irish Manuscripts in the Libraries of Switzerland," by the Rev. Dr. Ferdinand Keller, of Zurich; "Palæographia Sacra Pictoria," by Mr. J. O. Westwood, the distinguished English palæographer; "Art of Illuminating," and "Handbook to the Byzantine Court," by Mr. Digby Wyatt; and some well-known home and foreign art and archaeological publications. At the end of the chapter a useful list of other works, British and foreign, are given, which have treated of the subject of early Irish art, and which are valuable as references.

From all he has adduced on the subject of Irish art, Mr. Brash thinks he may safely infer: "1st. That the Irish race originated this peculiar style of ornamental decoration [the Book of Kells and other illuminated MSS.], which in point of fertility of invention, accuracy of delineation, and richness and harmony of colouring, was unrivalled, and had attained its acme of perfection in the sixth century. 2nd. That taking into consideration the slow progress of art, we must admit that it had been practised in Ireland long before the introduction of Christianity, to the iconoclastic zeal of whose professors is in all probability attributable the destruction of many valuable pagan manuscripts and works of art."

Further, our author is of opinion that the pre-Christian civilisation of the Gaedhil has been greatly underrated, and in fact denied, by a modern school of Irish antiquarians, through an affected sentimentality that attributed everything in letters, arts, &c., to the introduction of St. Patrick. We are of the same opinion; and the more we study the national monuments of our country, the more we are convinced that art and letters were in no backward state on the advent of St. Patrick. Speaking of this proneness to attribute everything to our national saint and his disciples, Mr. Brash observes:—"As if Christianity would not achieve a far more glorious and difficult triumph in overcoming the prejudices of a civilised race, the influences of a long-established religious system, and the consolidated power of a learned and astute priesthood, than by the conversion of an ignorant and unlettered race, such as those writers have indulged the habit of representing their countrymen to have been."

The above words are well put, and the sentiments could be appreciated without reserve by Catholic as well as by Protestant Irishmen. In our very ancient rock-sculptures exist undoubtedly the germ of the art in which our countrymen excelled in later times, and certain features of this ornamentation are traceable in our illuminated manuscripts, monumental slabs, and crosses. Mr. Henry O'Neill's work on the "Sculptured Crosses of Ireland," and Miss Stokes's "Christian Inscriptions," may be consulted with profit in the matter of examples of Irish art.

"It is worthy of remark," says Mr. Brash, "that, though the Irish exhibited wonderful fertility of invention, taste, and fancy in design, the utmost accuracy in drawing, and of harmony in colouring—that peculiar class of ornament in which they excelled, their

attempts at representing the human figure, either in painting or sculpture, were decided failures. They appear to have had no idea of light and shade, or of perspective, and very little of the proportion of the human subject; even their representations in outline of birds, lizards, dogs, are grotesque and exaggerated." As far as ancient works of sculpture are included, allowance must be made for the wear of long centuries.

The early Irish were not the only people who have had no idea of light and shade, and of the other requisites of good delineation, as mentioned by Mr. Brash; and this want continues down to our own time in regard to some eastern nations. In an accurate representation of a very highly-illuminated miniature painting, in a Persian manuscript of some antiquity, an engraved plate of which is given in the first volume of the *Anthologia Hibernica*, there is the same failure to portray aright observable. To use the words of the writer of the article descriptive of the Persian picture in that publication, there is "a total absence of design, perspective, proportions, and shades, and a redundancy of minute ornament and glowing colours" which, he adds, seem to confirm the opinion which the famous Italian pilgrim, Pietro della Valle, entertained of their skill in this art. The Persian poets, like the early Irish ones, could describe beauty and love in glowing colours, but they had not painters or sculptors capable of doing justice to their descriptions. To use the words of the Italian pilgrim or traveller alluded to, who wrote of the Persians upwards of two hundred years ago:—"Their figures, though painted with the finest and most varied colours, are of no effect, being destitute of design, of which the artists are grossly ignorant." A copy of the poem of "The History of the Lives of Joseph and Zuleikha," in Persian manuscript, which the miniature painting fails to do justice to, is preserved in the Bodleian Library at Oxford, and at one time it was supposed to be the most highly ornamented manuscript in the world.

Despite the deficiencies in certain phases of Irish art, pagan or Christian, as a whole, it exhibits a progress to feel proud of, and Mr. Brash cites ample authorities in his work in proof of his statements on the question of early Irish art.

We now come to the Romanesque period, to which Mr. Brash devotes the most lengthened chapter in his work. He commences by disputing the statements advanced by Dr. Petrie as to the date of the introduction of sculptured decoration in Irish architecture. Certain ornamental features in the churches of St. Flannan, at Killaloe; of Rahin, King's County; St. Saviour's, at Glendalough, and in other buildings, were ascribed by Dr. Petrie to the eighth and ninth centuries, but Mr. Brash contends on purely architectural lines, and apart from any wish to deprive his countrymen of any claims that can be historically and conscientiously supported, that "we have not the slightest evidence that either in England, Normandy, or Germany, carved decorations, such as we find in the above-named examples, were in use at the periods stated. On the contrary, the evidence of existing buildings in those countries, the dates of which have been established from documentary evidence, and which exhibit similar features, go to prove no earlier date than late in the tenth, or early in the eleventh century. But as I have shown that Ireland was in advance of the rest of Europe, in the art of ornamental design and illumination and in monumental sculpture, and as there was an early and constant intercourse of literati and ecclesiastics between Ireland and the continent, and particularly with Germany and Northern Italy, we may safely surmise that certain features of the Lombardic style may have been introduced into this country in the tenth century, even before the Norman style became prevalent in France. It must, however, be admitted that the Romanesque was

not fully developed in our island until the eleventh and twelfth centuries, that development exhibiting many kindred features with the Norman of France and England, but having, also, peculiarities distinctively its own: That the earliest attempts at architectural decoration amongst us should be founded in some degree upon the art principles already practised, is but reasonable to expect."

Mr. Brash then proceeds to give some examples of early churches with native and foreign features intermixed, the ornamentation being indigenous to Ireland, and some instances so peculiar in their features as to put it beyond doubt that the ornamental decoration could be other than of native growth, uninspired by either Norman or English examples.

The Romanesque style was introduced into this country, in the opinion of Mr. Brash, before it had been practised in England or Northern France; and he came to this conclusion from an examination of a great number of our ancient buildings and a study of the examples of Irish art in various publications and MSS. The late Dr. Petrie previously came to the same conclusion respecting the Romanesque style. In case, however, it should be supposed that Mr. Brash echoed his predecessor's opinions, he says:—"It is however gratifying to my own mind to know, that my views were formed before I read the passage in that gentleman's work. Opinions thus independently formed, and conclusions arrived at, claims for them some consideration." Mr. Brash quotes the passage from Dr. Petrie's work, and adds that while he subscribes to the general views of the distinguished antiquary, he has been obliged to dissent from his (Dr. Petrie's) application of it to the particular examples he has referred to in support of it. Dr. Petrie's error, in the opinion of Mr. Brash, consists in carrying the Hiberno-Romanesque period back to a date far too early by two centuries.

As he proceeds with his subject, Mr. Brash illustrates his text with a number of examples: architectural details of windows, doors, and sculptured ornamentation in connection with our churches and some of our Round Towers; and, in respect to the latter, he puts forward tenable proofs of additions and alterations that have been effected at different dates with a view to harmonise their architecture, if possible, with that of the churches of the period.

In respect to Temple Finghin, Clonmacnoise, where a church with an incorporated tower stands, Mr. Brash, by the aid of measured drawings, proves, we think, to the satisfaction of everyone that the church and the tower are not coeval buildings as Dr. Petrie particularly instanced in this case. We will quote a portion of Mr. Brash's description:—"In the first place, the courses of the masonry in both buildings do not correspond, as would be the case were they jointly erected. Neither are they regularly bonded each into the other, but the masonry of the church is *toothed* into that of the tower, a process known to masons when erecting a new building in connection with an older one. Again, it is evident from the mode in which the roof of the church is connected with the tower. Had they been coeval erections, a proper water-table would have been built into the wall of tower, to protect the junction of the roof—a practice carefully attended to by all mediæval builders. Instead of this, a chase was cut in the wall, and the roof let into it. Again, it is evident from an examination of the junction of the nave and chancel with the tower; the enlarged plan of this part clearly explains itself. After the church had been built against the latter, the builders found that the circular wall of the same had an unsightly appearance in the angle of the nave, or when erecting it they conceived that they could cut out that portion of the tower and so complete the angle of this part of the church. They accordingly commenced doing so by cutting the outer stones into two concentric circles, but having got through two-thirds of the

\* See ante.

thickness of the wall, they were obliged to desist, as the tower had been so weakened by the necessary cutting for the connection of the walls of the church, and by the proximity of the door, that it shewed signs of giving way, as right over the angle of nave is a settlement, and a crack in the tower,—this crack has been closed externally as a part of the late repairs, but internally it is still quite visible;—not being able then to carry out their intention of completing the angle of nave, they fashioned the mason-work into an angle pillar; the whole arrangement is still to be seen and examined; to the eye of the practical builder it tells its own tale as plainly as if he were looking at the whole operation."

Mr. Brash has certainly conclusively proven his case in this instance. The erection of the tower here must have long preceded the church, and the ornate chancel arch is probably an insertion belonging to the eleventh century, but the body of the church is of a much earlier date. The Round Tower was appropriated by a Christian community and utilised, and, as in this case so in several others, there have been appropriations, alterations, insertions or additions from time to time.

Other features of the Hiberno-Romanesque period will be touched upon in our next paper.

## HANDICRAFT AND HANDICRAFT TOOLS.

(Continued from page 306.)

### HAMMERS.

It is curious to notice that the only mechanical tools for external use with which man is provided by nature are the hammer, a compound vice, and a scratching or scraping tool. These are in the hand; and in the various contrivances which have from time to time been introduced to notice of compound tools, none have surpassed in comprehensiveness of variety these three in one. As a vice, the hand is worthy of a very lengthened notice; as a hammer alone it is now our concern. Whilst for impact upon a substance softer than itself the fist can deal an appreciable blow, yet upon one harder than itself the reaction of the substance transfers the blow to the flesh and bone of nature's hammer.

When the materials of which this earth is composed are regarded as those that may be useful to man (if only he had them in such a form as could be handled and used), and when, further, the very procuring of food by the slaying of animals, is one of the essentials of man's existence, it will be admitted that a very early want of mankind would be a means for possessing himself of these without inflicting damage upon his bodily framework. Now, although the arm and hand are contrived with a perfection of adaptability to motion as well as facility for holding, yet they are quite unsuited for the purposes alluded to. Indeed, it is clear that in none of the years in which the human race have dwelt on the earth could man have won those materials and that food which were essential for his welfare, unless, availing himself of the holding power of the hand, and the rapid motions of the arm, he could supplement these by means for gaining what these alone could not acquire.

Hence amongst the contrivances which have come down to us from those ages before history was written, or the use of metals known, are found stones shaped, we may suppose, by the action of water, and so rounded as to fit the hand. These stones are called by antiquarians "mauls," and they were probably held in the hand, and struck against that which otherwise could not have been broken. In these "mauls" is the original hammer.

Graduating requirements of the social state of our pre-historic ancestors, as we would our own, this maul might occasionally have proved too heavy, but more frequently too light. For that tapping action which in our minor wants is often more requisite

than blows, they seem to have devised an ingenious appliance consisting of a stone specially prepared for this somewhat delicate operation.

Mr. Evans has collected and engraved a number of the ancient stone implements found in Great Britain, "The Ancient Stone Implements of Great Britain," published by Messrs. Longman. One of these tapping hammers, held between a finger and the thumb, bears traces of wear as if employed in striking against a cylindrical or sharp surface. The mode in which the recesses for the finger and thumb may have been formed has exercised much ingenious surmise.

When now we pass from this light to very heavy work it will be obvious that to hold a stone in the hollow of the hand, and to strike an object with it so that the reaction of the blow shall be mainly met by the muscular action of the back of the hand, and the thinnest section of the wrist, would be not only fatiguing, but might be injurious to the delicate network of muscles there found, and so damage this part of the hand. It may have been from such effects that even in the stone age, there are traces of "mauls" which have double ends and are held by the middle. A blow given by such is counteracted not only by the increased mass of material, but also by the changed position of the hand and wrist in relation to the direction of the blow. When held in the hollow of the hand, the resistance was met by (say) a depth of tissue of about three-quarters of an inch, but when held as the maul now alluded to must have been held, this resistance is met by a depth of tissue of about three inches. Hence whilst mechanically (owing to the mass of stone) and muscularly (owing to the position of the hand in reference to the direction of the blow) the "maul" in this second stage is a decided improvement upon its primitive form, we cannot but admit that experience would soon suggest that even thus there was wanting sufficient energy to overcome resistances, and that the double-headed maul might be improved.

If any one has been required to use a stone in the hand as a hammer, and continued the occupation, he might well long for a changed mode of applying his muscular energy.

Even the pre-historic races, of whom mention has been made, discovered that whilst the hand possessed inimitable contrivances for grasping, and whilst the arm possessed equally inimitable contrivances for rapid motions, both jointly failed in giving the maul the power that would often be required. In that stone age ingenuity had so busied itself as to lash withies round such mauls as were found suitable, much after the manner in which smiths at the present day lash withy round the heads of their cutting and punching tools and swages. Indeed there are traces of even a higher advance, for what seem stone mauls, or hammers, are found with holes through them, suitable for handles, and these holes are, in some instances, coned, and as well adapted for hammer handles as the best-made metal tools in these days. One such stone hammer-head is shown. The original is in the British Museum, and was found in the Thames. The double-coned hole for the attachment and wedging-up of a handle is very admirably formed. Indeed, the very shape of the hammer is worthy of much commendation. How they contrived to fix a handle in a double-coned hole in a stone maul is more than we know. The surmise of the antiquarians may or may not commend itself to the mechanics of the nineteenth century, but they will be interested in what was perhaps a very ancient practice, and though novel in this generation, it would be unwise to secure any patent right in it. They say that finding the branch of a tree about the size of the smallest part of the eye of the maul, the stone was hung on it, and after a few years the growth of the tree fixed the handle in the maul, and then the branch was separated by some of the sharp stone implements they used for such purposes, and thus almost as

the fruit of the tree the branch and maul became one—handle and hammer.

A tool which has thus descended to us from geologically pre-historic times has doubtless undergone great changes, not only in form, but also in appended contrivances. As new wants arose, new means for gratifying them must be furnished, and thus the maul—in the hands of Adam's first descendants—is, after some thousands of years, passing from human hands to the more powerful and less easily fatigued hands and arms of machinery and steam. Our concern in these lectures is only with the tool as men used it, until James Nasmyth was one day detained at home by the rain, and made that graphic sketch which introduced the maul to steam machinery.

In the stone hammers alluded to there are presented to the tool fancier greater curiosities than the hammers themselves; for not only are there external concavities and peculiar shapes for adaptability to the hand, but there are holes bored through the stone as perfectly, as cleanly, and as well finished as the best of modern machine appliances could accomplish. How to form these concavities and holes now-a-days, some roughened, some smooth, and some even oval, would not be very obvious to the majority of workmen without what may be called machine-driven tools. All the concavities do not seem to be consequent upon grinding, for either originally or from age some are as rough as sand-paper, whilst the stone itself is comparatively smooth. Now had this roughness been a consequence of time and wear it would have affected the whole surface. But such is not the case. A recently-patented, and to this generation novel discovery, seems to be suggestive of a process the men in these geologically pre-historic times might have used. The process has, too, this element to recommend it, viz., little (indeed we may say no) machinery is required.

Those who visited the Exhibition of 1873 might have noticed some peculiarly roughened glass and cut marble; also holes bored in steel files by the operation of a sand-blast. Now, if the operation of boring by this process be watched, it will be found that the commencing hole is gradually enlarged, and if the process be continued until the abrading power of the sand grains is nearly neutralised, by the reflected and re-reflected particles against the sides of the holes, further penetration will cease. The ingenious re-discoverer of this power of driven sand has met the difficulty by turning over the material in which the hole was being bored, and commencing to tunnel, as it were, another hole to meet the first one. The effect of these two operations will be the production of a hole coned from both sides, leaving a large end of the cone at each surface; the meeting of the cones being formed by the intersection of the two borings. Therefore, if the operation of a stream of sand, driven by air or falling from a high place, or even mixed with water, and dropping from above be used, then, not only have we a ready available means of boring surface-holes in what antiquarians call tapping tools, but also in those "whorls" of which many are found about the size of these tappers. The "whorls" appear to have been used to add weight to, or load drills. Similar whorls are still thus used in Africa. They also contributed to steady the action of drilling tools, in a manner similar to that accomplished by a fly-wheel in the best constructed Archimedean drills. Nay, further, our pre-historic ancestors had only to watch those effects of water and sand with which the geologists tell us they were encompassed on a scale of magnitude to which all our terrestrial arrangements may be called puny. Such watchings would supply hints for the making of many of those holes found in stone and other hammer heads, and in implements the use of which we cannot divine. Nature abounds even now in hints, and it seems that, familiar as we all are with the scooped-out hollows in the rocks of waterfalls, the penetrative properties of driven sand were

not utilised until they were patented in the nineteenth century.

The operations of sand driven by the winds, or mixed with falling water, would certainly produce such concave recesses as are found on the two sides of these tapping hammers, and by almost obvious contrivances the short and small perforations which connected these into a whorl could be made by the same means. When, however, the exquisitely finished stone hammers and the holes through these are examined, this mode of perforation fails to account for what may be observed. Some of the holes are coned from both sides, being wider at the two outside ends, and connected in the middle by either a cylindrical hole or the coning of the two external cones into one perforation; such have most probably been bored either partially by the sand process now described, or entirely by a rotating stick or stone with sand and water. That some simple but very tedious process of perforating even hard stones existed there is little doubt, and the practices of (so called) savage races confirm this view. The holes in the stone implements vary from 1-16th of an inch in diameter to 2 inches, and dealing first with those which are parallel through pieces of very hard and tough stone of the size of a carpenter's large or a smith's ordinary hand hammer, it may be said of the group of such holes that with all our modern machine appliances they could not have been more perfectly formed. Many of them do not bear any traces of what may be called "hints" as to how they were made; they are as smooth and almost as polished as the holes in a set of Whitworth's gauges. A few, however, speak a language of hieroglyphics which a mechanical eye can certainly decipher.

(To be continued.)

#### UNKNOWN DUBLIN.

BY THE "OLDEST INHABITANT."

*Edited by Mark Philip O'Flanagan, T.C.D.*

NORMAN KEYS—third visit.

THE "Oldest Inhabitant" continues his narrative:—

"Between the years 1800 and 1810 the artisan classes in Dublin in general suffered much from want of employment, and a large number emigrated to England and America. Without doubt, sir, the Act of Union for several years seriously affected industrial pursuits in this city, as many of the resident nobility and members of Parliament passed over to the sister kingdom, where they resided the greater part of the year, some of them absenting themselves altogether. In the year beginning January, 1810, not more than thirty houses were built in Dublin, and a great and sad falling off indeed from what it was ten or twelve years earlier. In 1798 there were in Dublin 2,661 regular journeymen carpenters in the body or society, besides a considerable number unenrolled outside, not deemed regular, but which numbered at least 1,000. Will it be believed that in 1810 it was stated on authority that the regular journeymen carpenters amounted to no more than 221?"

"The trade in general on Norman Keys, however, was pretty good at this period, for the new courts of law brought an influx of business to this side of the river, and country as well as city customers were not a few, as Spill-lane and Ormond Market were great resorts on the part of the country dealers. The merchants on both Keys did a profitable trade; several had already become rich, and were thinking of retiring. The bookselling and stationery element was on the increase, and kept on increasing for several years subsequent. A list of the principal merchants, traders, and others residing on the Keys about 1810-12, entered in my notebook, will afford an index as to the trades represented here at the period of which I am speaking.

"Among those on the Upper Walk were: John Cooke, bookseller, at 7; George Perrin

and Son, printers and booksellers, at 11; Patrick Phelan, bookseller, at 35; John Dickinson, ironmonger, at 12; James Hamilton and Co., merchants, at 20; Henry Hartstonge, watchmaker, at 32; Christopher Holmes, ditto, at 18; William Jones, cabinet-maker, at 80; Patrick Campbell, glover, at 2; Richard Ferrall, hosier and glover, at 24; T. and W. Cogan, linen drapers, at 19; Stephen Cox, fishing-tackle manufacturer, at 6; Robert Abbot, bootmaker, at 15; Joseph Clare, auctioneer, at 10; Thomas M'Cracken, cutler, at 18; Neilson and Co., scriveners, at 84; H. A. O'Neill and Co., cheese and spice merchants, at 33; John O'Neil, merchant, 23; Walter Preston, shoemaker, at 37; Martin Meehan, grocer, at 33; W. and J. Robertson, seal cutters, at 28; Anthony Willis, silversmith, at 4; Jonathan Mason, optician, at 9. Of some of the above I will tell you an odd thing or two hereafter in relation to their later years in business.

"Coming to the principal merchants, traders, and other noted residents on the Lower Walk, I find among my list the following: Edward Atwood, merchant, at 19; William Brownlow, ditto, at 36; Edward Butler and Co., at 12; Anthony Davis, auctioneer and valuator, at 23; this trade was always a strong element on both Keys. John Corry, whipmaker, at 17; Edmund Dillon, apothecary, at 26; Joshua Dixon, sheriff's peer and shoemaker, at 4; this was a rather historical house during after years. Peter Grehan, merchant, at 9—a most remarkable trader; of him more anon. Joseph Henry, merchant, at 5; Howe and Craig, wholesale haberdashers, at 33; Richard Kelly, stonecutter, at 37; Mark Keen, secretary to the Royal Canal Company, at 28; at this house the directors of the company held their meetings for several years. William Kertland, chemist and perfumer, at 1; previous to this at Abbey-street, and after removal from the Key for several years in Lower Sackville-street; this was a very old city firm. Francis Kirkpatrick, merchant, at 3; Richard Litton, merchant, at 21; Philip Molloy, merchant, at 7; Samuel O'Reilly, cabinet-maker, at 13; Robert Purdy and Co., merchants, at 27; of this noted firm more anon. Richard Quinton, officer of commons, at 16; John Renshaw and Son, coach platers, at 35; Robert Rogers, glass merchant, at 7; Jeremiah Sullivan, paper maker, at 14; John Taylor, wholesale stationer, at 8; Thompson, Brown, and Co., wholesale haberdashers, at 36; William Tillard, wholesale hosier, at 25; Wogan and Cumming, booksellers, at 15; James Wyon, ironmonger, at 18.

"In 1810 the attorney element was pretty strong on the Upper Key, and there were several of the profession also residing on the Lower. Several of these practitioners were well known by their peculiarities in the different courts to which they belonged, and the descendants of two or three of them are still practising in our courts, or were within the last few years. The attorneys, like the booksellers, on the erection of the new courts of law, migrated from the south side, from under the shadows of Christ Church, and bid farewell to Castle-street, High-street, Skinners'-row, Hoey's-court, Back-lane, Werburgh-street, and out and about these ancient quarters. The now woe-begone Golden-lane and Chancery-lane, off Bride-street, were once noted places, and by the lawyer element much frequented. Nobles and judges did not turn up their noses on entering these once classic but now dirty and tumble-down defiles; but the hard-worked and misery-steeped residents of these courts are now oblivious of the memories that hang around their homes.

"About the period of 1818-20, and for some years subsequent, many of the names I have previously mentioned still continued to reside on both Keys, with new merchants and traders, whose names are still remembered by many of our older citizens on account of their humorous traits of character, odd doings and sayings, and other strange characteristics in business, manner, or dress. Before recounting to you the odd and amusing

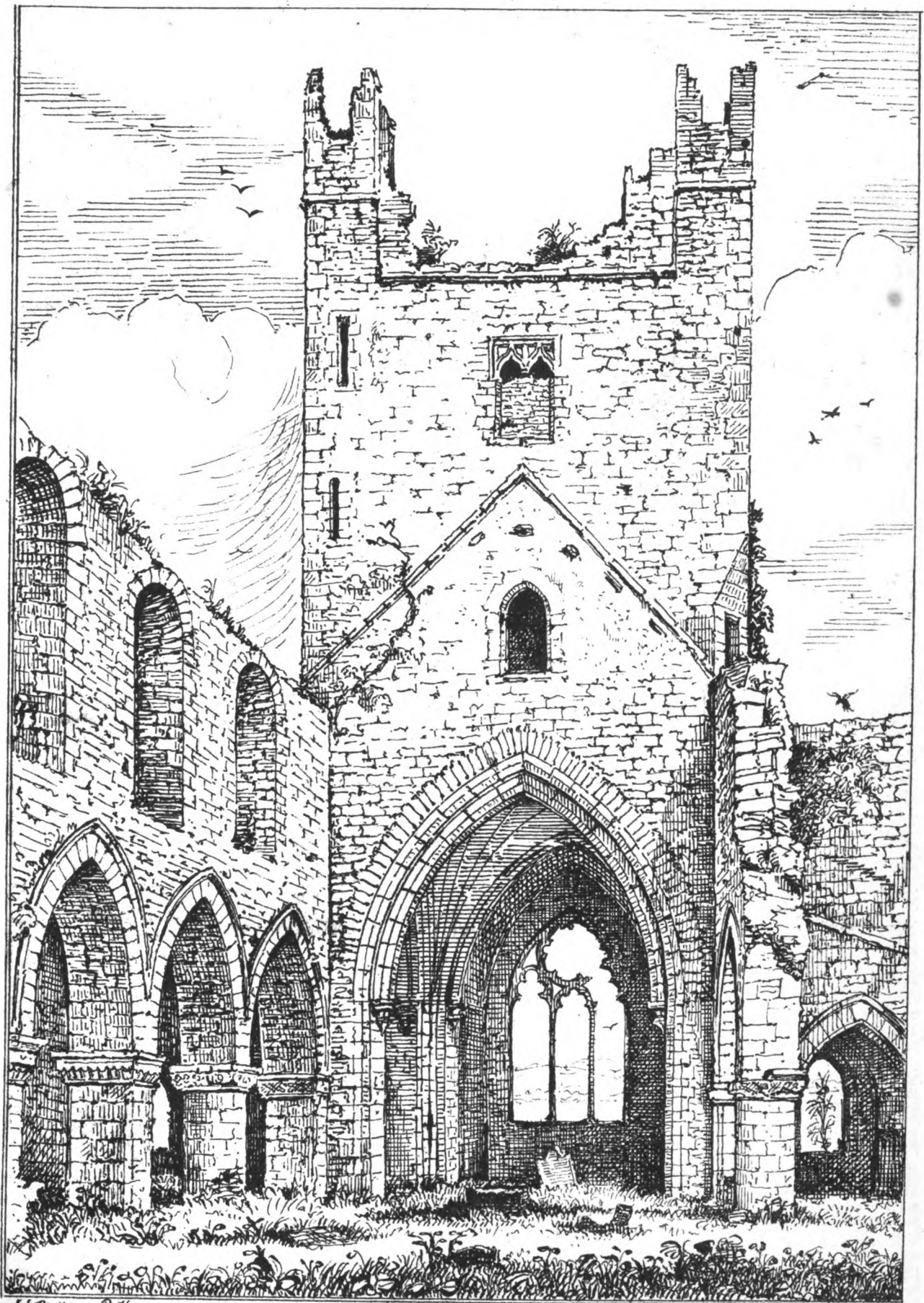
ways of some of these old merchants and traders, I will give you a list of the principal of them who resided on both Keys about the latter year mentioned.

"On the Upper Walk resided: Charles Sims, a member of the Common Council and of the Guild of Barbers; H. P. Delany, solicitor, Master Extraordinary in Chancery, at 37; Anthony Willis, silversmith, still continued to reside here at 7; James Wall, breeches-maker and glover, at 37; George Steele, furrier and army accoutrement maker, at 4; William Singleton, merchant tailor, at 2; W. J. Robertson, seal cutter, still continued, but at 21; H. A. O'Neill and John O'Neill, merchants, continued at 23; William Nolan, grocer, at 28; Morron and Hay, perfumers and fancy warehouse, at 27; Patrick Molloy, dyer, at 36; Martin Meehan, grocer, at 33; Philip Masterson, confectioner, at 27; George M'Question, stone and seal engraver, at 4, afterwards at Westmoreland-street, as seal, gem, and portrait engraver to his Excellency; John McNamara, glover, at 80; John McDermott, perfumer and fancy warehouse, at 8; Robert Keightley, bookseller, at 35; William Hughes, apothecary and druggist, at 16; Christopher Holmes, watch and clock maker, at 18; Margaret Hoey, bookseller, the widow of Peter Hoey, at the old shop; John and James Hamilton, merchants, at 2; Robert Frayne, cabinetmaker and auctioneer, at 18; Adam Fleming, glove maker, at 25; Richard Ferrall, wholesale and retail hosier, at 24; Isaac Eades, fishing tackle maker, at 26; William Dickinson, ironmonger, at 11; Stephen Cox, fishing tackle maker, at 5; John Cooke, law bookseller, at 6; Bernard Clarke, boot and shoe maker, at 30; William Bell, ditto, at 1; Benjamin Abbot, ditto, at 15; J. A. Bardin, public notary, at 8; Sheriff's Office for the city was at 32.

"Many of the above merchants and traders were long established on the Upper Walk, and several of them continued down to a much later period. On the Lower Walk at this period, and for some years later, the following merchants and traders resided, a few of whom I will particularly allude to presently—John Wilson, slate merchant, at 32; Jeremiah Sullivan, paper maker, at 14; Daniel Sullivan, in the same trade, lived in Cook-street; John Renshaw and Son, coach platers, at 35; John Martyn, copperplate engraver, at 30; he did good business for some time. William M'Daniel, indigo merchant, at 26; Thomas M'Cormick, agent for Slaters' Patent Cooking Apparatus, at 24; this patent apparatus is forgotten long years ago. Richard Litton, merchant, an old resident, at 21; James Oswald, army clothier, at 8; William Kertland, apothecary and chemist, at 1; Howe and Craig, wholesale haberdashers, at 33; Clement Codd, merchant, and Roslin gunpowder office, at 23; Clement Codd was a most extraordinary character. I shall have something to say in detail of him hereafter. Edward Butler and Co., merchants, at 12; Robert Bushe, merchant, at 29; Henry Brooke, merchant, at 10; John Bryan, tailor, at 30; Robert Armstrong, merchant, at 20; Edward Atwood, merchant, at 19; Joseph and William Henry, merchants, at 5; Thomas Haydock, printer and bookseller, at 17; Hall and M'Intyre, merchants, at 22; John Franklin, paper stainer, at 13; an old trader, was afterwards a member of the old Corporation, and a member of the Guild of Cutlers. Edward Delany, bookseller, at 39; Michael Delany, in the same trade, lived at 8 Bedford-row; and V. Delany had a stall for books at the Four Courts; John Cumming (afterwards John and William), bookseller, at 16; of this house and its associations, I will tell you something hereafter.

"Peter Grehan, who lived for several years at 9 on the Lower Key, and afterwards, I believe, at North King-street, was a prosperous and remarkable merchant of the old school. He made a fortune, and retired long before the present generation was born. He commenced business, I believe, in or sometime before the era of the Irish Parliament, and continued in trade down till near the





J. Phillips - Del.

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commencement of the second decade of the present century. Andrew Grehan, merchant, in 1786 lived at 84 Bachelors'-walk; and a Patrick and Peter Grehan lived in the same year respectively at 55 and 184 James'-street. Peter, the Norman Key merchant, retired, as I said, and lived for many years to enjoy his old age at 19 North Rutland-street, where he continued to reside till a few years ago. At his death he must have been between ninety and a hundred years old. At 20, formerly 18, on the Lower Key, lived James Wyon, ironmonger. This was the first house opened as a shop here, 14, formerly 13, being the second shop opened, the houses previously being private. James Wyon is spoken of with feelings of the highest respect by the few old citizens and neighbours who live and have had dealings with him. He was a fine, courteous, and courtly old gentleman trader, with appearance and manners that the shopkeepers of this generation fail to show or cultivate. Peace be with this grand and kindly old gentleman trader! No. 13 was opened by John Franklin, paper-stainer, about 1815, but the date of the house in the trade dates back ten years or so in the last century. John Franklin, as I stated already, was a member of the old Corporation, and the business of the old house is still carried on by his son and successor, John De Courcy Franklin, a member of our present "Reformed" Corporation. Mr. Franklin, jun., possesses an interesting relic in the shape of a beautifully-carved oak chest belonging to the old city guild of which his father was a member. Few of the relics, sir, of the old city guilds are to be traced now, or acknowledged by those possessing them, though shortly before the passing of the Irish Municipal Act the halls of several of the city guilds had many articles of value in the shape of paintings, books, documents, and furniture.

"In the house now 25, formerly 23, lived for several years Clement Codd, gunpowder merchant, whose name I have already given among several others. Codd, from my own knowledge and from what I have been told by others, was one of the most singular characters in trade that ever lived on the Lower 'Key' or elsewhere. He was a very tall man, of fine physical proportions, and was one of the 'dandies' for which the city was celebrated upwards of fifty years ago—a sort of Irish Beau Brummel in the days of the Prince Regent, George IV. He dressed also to the character, and continued so to the very last—blue coat and gilt buttons, buff vest and white tights in summer, grey tights in winter, pumps in summer, and Hessian boots in winter, frilled shirt front and frilled wrists or cuffs. He wore a suit of clothes until he could wear it no longer, through perfect wear and tear, and then he donned a new suit which went through the same process, shabbiness succeeding fading grandeur. The gossips of the day said he was crossed in love early in life, and, having an extensive and costly wardrobe, these were the suits he constantly wore out and removed from his stock. He was very wealthy but lived narrowly. He died at his house in Fitzwilliam-square, or rather, I think, he was found dead; and, as he died intestate, his property went to the Crown. During his residence on the Key a rather ludicrous incident occurred there on one occasion. The front of the house was private, and the hall-door leading to the gunpowder office was lying open for access. A drove of cows coming along, one entered the hall, then another and another until the office, which was rather small outside the counter, and the hall, which was narrow, were completely filled with the affrighted cattle. The driver could not get in to turn them out, and the space was too narrow to allow of their turning. After a considerable time being expended in a vain endeavour, the expedient was resorted to of using a rope in 'lasso' fashion, and they were pulled back one by one by the horns. How Dandy Codd felt under the excitement I never heard. Clement Codd had a clerk of the name of Latham,

who always went by the name of Johnny Codd, he was a kind of 'Bob Crotchet,' and was as hard worked as badly paid.

"In this city still, sir, there are many factotums of the same character who go through a life of drudgery for their masters and are not remembered in their wills. Another honest but strange character lived at 24, formerly 22, on the Lower Key, of the name of James Morris, a paper-stainer, but commonly called 'Jemmy Morris.' Outside one's hearing in Dublin, there is always an abbreviation or a nickname applied. Few, indeed, of the old popular merchants or traders in the city but were known by some nickname or other—indeed, this is a country of nicknames. Jemmy Morris was established in the paper-staining trade for many years, first, I believe, at 187 Great Britain-street, before his removal here. There were others of the same family name also in the trade—William Morris, at 3 Fleet-street; George Morris, at 15 Henry-street, and J. Morris, 13 Parliament-street. The hero of my story was, in appearance, fat and unwieldy, and was a 'stickler' for upholding the dignity and prices of goods in his trade. In his day, room-paper was three shillings or more per dozen for the cheapest, but 'spoil trades,' as they were called, sold a quality at two and sixpence per dozen. Jemmy Morris in lamenting the degeneracy of the trade, one day, to an old neighbour in the same trade, who supported the dignity of the profession like himself, told him the following extraordinary expedient he adopted to hunt customers out of his shop who called for two and sixpenny paper. He procured a dog, and actually taught him when any person came into his shop and inquired for paper at two and sixpence per dozen, to bark, bark, and continue barking. This the faithful dog did until the intending purchaser or 'spoil trade' took refuge in flight, to the great satisfaction of Jemmy. This characteristic of the notable James Morris is absolutely and literally true.

"I must postpone, Mr. O'Flanagan, until our next visit, the other remarkable incidents that hang around names and houses in this quarter, for I have much to tell you yet of the two 'Keys.'"

We parted for the evening with the "Oldest Inhabitant."

#### THE DRUMCONDRA SEWERAGE SCHEME AND THE TOLKA NUISANCE.

THE inquiry held by the Local Government Inspector respecting the above scheme, terminated since our last issue, and the report was, we suppose, in due time forwarded to the Local Government Board. What their decision will be has not reached us as we write. The proposed scheme of sewerage for the Drumcondra district] was prepared by Mr. James Boyle, C.E. The plan proposed an outlet either at Ballybough Bridge or east of Annesley Bridge—the latter was estimated to involve an additional cost of about £400. We have before us some correspondence that took place between the opponents of this scheme and the Corporation, as also the reports of Mr. Boyle and Mr. Parke Neville. It is not necessary for us to publish these documents in full, as the case as at present is pretty fully understood.

A deputation selected by the inhabitants of Fairview Strand and neighbourhood, waited last month on the Clontarf Commissioners, with a view of getting them to co-operate with the Corporation of Dublin to clean the bed of the Tolka within their township. They disclaimed any responsibility, refusing on the ground that no portion whatsoever is or had been contributed by the Clontarf township. At the same time the

nuisance was of such a serious nature that five of the commissioners with other inhabitants gave their names as willing subscribers to a fund to cleanse the river within the township. The Corporation were asked to co-operate in doing their part. The answer to this application, on the part of the Corporation, was to the effect—That the winter had set in, and that there is and will be constant heavy floods in the river, and that these floods would partially, if not entirely, remove from time to time the deposit. It was added that next spring, if necessary, the cleansing would be done with better effect. Further, that after the new sewer was made in Poplar-row, all would be right, and that this work could be constructed before the hot weather set in.

Mr. Parke Neville, the Borough Engineer, reported subsequently that there was a considerable amount of foul deposit in the river above Ballybough Bridge, and also between this bridge and Annesley Bridge, notwithstanding the recent heavy floods. Mr. Neville says there is only half of the river between Ballybough Bridge and Annesley Bridge within the city, and no part of it above the first-named bridge. In his opinion it would be quite useless to attempt to cleanse the portion of the river within the Corporation limit, unless the Clontarf Township Commissioners contemporaneously cleansed their parts both between the bridge mentioned and the part of the river above Ballybough Bridge. He adds there is only one sewer belonging to the Corporation discharging into the river just east of the latter bridge, and this sewer, he says, could be easily diverted down Poplar-row, having an outlet into the tideway below Annesley Bridge. He recommends the latter as a useful work that can be carried out next spring.

We fear the diverting of this corporate sewer, and the discharging of its contents into the tideway below Annesley Bridge, will effect but little good, for, the incoming tide will carry a large amount of the foul matter up the Tolka again to the neighbourhood of Richmond. Independent of this, the Tolka must be always in a state of pollution if the inhabitants of Finglas, Glasnevin, and Drumcondra are allowed to utilise it as an open sewer for the discharge of their sewage or other foul matter. Drumcondra is entitled to a sewerage scheme, but she is not entitled to discharge her sewage to the detriment and injury of the property and health of an adjacent district. If the present scheme is permitted to be carried out, the estuary opposite Fairview and along and beyond Marino Crescent, will be transformed in time into little better than a feculent swamp. In fact, we look forward to the time when hundreds of acres of this estuary or tidal land will be reclaimed.

We will not, however, speculate much on this event, or even on the certainty of the Main Drainage work, along with the People's Park cropping up in the Clontarf neighbourhood, as measures of relief. These matters are rather remote for the inhabitants interested in the purification of the Tolka to build much hope upon. They seek immediate relief, and Fairview and Clontarf are entitled to it. Let us have no more river pollution, and if the circumstances of the locality are such that it cannot afford to construct a proper outlet for its drainage, it should join issue with other districts in its vicinity that a larger work may be carried out for their common benefit. Failing in this, Drumcondra must utilise its sewage like other districts, or adopt a less dangerous expedient of getting rid of it than the one proposed, until the happy era of a general and well-digested Main Drainage scheme absorbs all the petty and nasty channels that run as they list through Dublin, to the great and lasting injury of property and human life. A word more: the Clontarf Commissioners have certain duties devolving upon them, and there are outfalls between Fairview and Clontarf township discharging upon the beach which henceforth will require attention.



### SOME ESSENTIALS NECESSARY IN BUILDING A HOUSE, BE IT FARM-HOUSE OR LABOURER'S COTTAGE.\*

THE following practical hints on cottage building were drawn up by the late Hon. L. H. King-Harman a short time previous to his last illness. Mr. King-Harman was a gentleman who practised as he preached, and the improvement of the dwellings of the peasantry on his estates was an object which he had always at heart. He fully recognised the principle that good, comfortable dwellings constitute the first great step towards the permanent amelioration of the social condition of the people, and recognising that principle, he acted upon it. It may be justly said of him that whatsoever his hand found to do for the benefit of his fellow-creatures he did it with all his might, uninfluenced by any consideration of party or creed.

1st.—The greatest care must be taken to place it in a dry, warm, sheltered position, and one from which there is a good fall for drainage.

2nd.—There should be a good drain sunk round the house, with the fall at the lowest corner or part, and on this or inside this drain the walls of the house should be built.

3rd.—The windows should be of a good size. I advise Sheridan's, Church-street, Dublin; these in all cases should be placed on window-stools properly throated, and not placed too high from the floor of rooms inside, as that prevents seeing out.

4th.—A most particular thing to be kept in mind, all roofs should project over the walls all round, say 10 in. to 1 ft. at least, no matter whether slated, tiled, or thatched: this keeps the walls dry, more particularly the gables, now so generally left exposed, particularly in thatched houses, and through which the wet soaks, injuring the wall, and rendering it damp, and spoiling everything near it. The wall plate has only to run out at the gables the distance required, and the rafters or couples continued on it; one pair of rafters and a neat couple with a clean sawed face should be placed at the end, and to which a fascia board should be nailed. It has a very good effect, and also prevents the wind disturbing the thatch, which if put in with plenty of boiled gas tar in each layer will last fully three times as long as ordinary thatch; will not ruffle up with the wind; weeds will not grow through it; and rats and other vermin as a rule will not like to burrow in it. When finished, to bring all to a regular colour, I paint with a tar brush all over the roof with a good coat of boiled gas tar and asphalt, three parts of the former to one of the latter material. The floors of all houses should be at least 6 or 10 in. above the level of the ground outside.

5th.—The chimneys should always be in the middle of the house, and never, if possible, on an outside wall, as very much heat which would otherwise warm the house is lost in the open air.

6th.—There should always be a porch either outside or inside the house or cottage, with outside door, and the inside one opening into the kitchen. In farm-houses there should always be a small back kitchen through which to pass to the back door—this keeps the house very much warmer and cleaner; and in it should be a boiler for cattle food and general purposes, together with an open fireplace to use if required. There should never be less than three bedrooms—an extra one in case of sickness is most useful. I divide these with wooden partitions, which can be made in two ways, either taking up at most only 3 or 4 in.; these never break down or shelter vermin, mice, &c., as the stud partitions, or take up the quantity of space as a brick or stone one, and can be put up by a handy man or hedge carpenter.

7th.—A hot-air chamber should be placed at the back of the kitchen fire, which will warm the two rooms behind it, if not more, and so obtain warmth and save fuel; also it is a great advantage and looks very neat to

raise a sort of brick fender in front of kitchen grate, say 2 in. over the kitchen floor, and rounded off at top.

In conclusion, I would beg parties intending to build farm-houses and offices to inspect my combined Irish-Swiss house and steading, all under one roof, by which means, while the farmer can at any time visit his stock, &c., the dwelling-house can be kept distinct and sweet and clean; also it must cause a great saving of expense in walls, &c. I would also beg to impress on the minds of persons building the very great advantage of good projecting roofs always used in Switzerland, where they often project some 4 or 5 ft., all which part being sheathed with thin 6-leaf stuff, the slates or whatever cover may be used will not be disturbed by the wind; wooden and other pegs, shelves over doors, &c., tables fixed to wall; flap made to fall down placed in kitchen window, and a neat board placed in a position to hold hooks for tins, &c. A good chimney-board is most useful and comfortable.

### LIGHT RAILWAY CONSTRUCTION IN IRELAND.\*

ON a former occasion the author alluded to the fact that the facilities specially afforded by Parliament (81 & 82 Vict., cap. 119) for the construction of "light" railways are not sufficiently known or appreciated by the large railways companies when constructing branches, or by the promoters of new railways in districts of small or medium traffic.

On several occasions, from so long ago as 1863, the author has urged the adoption of the system of "light rails and ordinary gauge" as, in many districts, the only solution to the question of railway or no railway, where the local resources are limited, and it is, at the same time, a *sine qua non* to avoid a break of gauge, and consequent transhipment of goods.

The reasons that prevail with the opponents of this system apparently are—1st. The Festiniog type of narrow gauge railway would be the most economical in working and in original cost, if light rails are to be used at all. 2nd. It would be an experiment. 3rd. The cost of providing special rolling stock would swamp any small undertaking.

With regard to the first of these objections, the author does not question the economy of the Festiniog type under similar circumstances to those of the Festiniog Railway, which runs through a rough and hilly country, and which has no traffic to interchange with other railways. Nor does the author say that there may not be other cases where a departure from the standard gauge and usual weight of rails would not be advisable; but he does assert that there are two things essential to the adoption of a narrow gauge, namely, that the railway shall be of some considerable length, and that the economy in working should counterbalance the inconvenience of transshipping goods from one set of wagons to those of a different gauge. He puts aside the question of passengers; for through-carriages from branches to main lines in this country are exceptional, and the inconvenience to passengers of a change is in any case slight. He also puts aside economy of construction, for in any part of Ireland where the question is likely to arise, the saving, by adopting a narrow instead of the ordinary gauge, when light rails are used in both cases, can only be very trifling.

As to the second objection, it no longer exists, thanks to the chairman and directors of this company, who have successfully carried out the first "light" railway in Ireland. The line is made and open; the question has been brought down from the region of theory to that of practice, and there is now a foundation in facts, wanting before, on which to found an opinion of the applicability of the system to other places.

Tralee, the principal town of the County

of Kerry, and one of the chief towns in the south of Ireland, is the terminal point of the south-western portion of the Great Southern and Western Railway. It is about two miles from the sea, to which there is a ship canal. From Tralee the Great Southern and Western Railway runs in an easterly direction for seven miles to Gortalea station, and then turning south, and even towards south-west, it goes on to Killarney and Mallow. Had it continued its easterly course for four miles beyond the seven already mentioned, it would have taken in the town of Castleisland. As it did not do so, however, Castleisland was left out in the cold; for although, for any traffic it might have to and from Killarney, Cork, &c., it had railway accommodation to a certain extent by sending five miles by road to Farranfore station, for its traffic to and from the county town of Tralee the Great Southern and Western Railway might, as far as Castleisland was concerned, as well never have been made.

The railway, the subject of this paper, was proposed in order to remedy this state of things, and by a short line  $4\frac{1}{2}$  miles long, branching off at Gortalea, to put Castleisland in direct railway communication with Tralee. The directors at first expected that terms of working could be arranged with the Great Southern and Western Railway, but they found that such a proposition would not be entertained. As long as there were any hopes of its being so worked, of course the idea of a "light" railway was not suggested; but when it appeared clear that, if made at all, it must be worked by its own engines, it was proposed to adopt light rails, and work the line with a light engine. The contract for the works and sleepers had at that time been concluded definitely, and for the rails provisionally, subject to the decision of the board on the adoption of 40 lb. or 73 lb. rails. Application was made to the Board of Trade for their "licence" to open as a light railway, with rolling stock no wheel of which should carry more than 4 tons, and with the speed limited to 20 miles an hour, these being the maximum weight and speed respectively allowed by the act. The licence was granted, but with the limitation of weight to 3 tons on a wheel,\* and of speed to 15 miles per hour.

With regard to the works, there is not much to say. For some length near Gortalea the railway passes over a red bog, originally from 16 to 18 feet deep. By a set of two parallel drains on each side this was lowered through 8 or 9 feet, without the surface being touched. It is now consolidated, and the easiest running portion of the road. The fencing is unusual. As more than three-fourths of the railway is through a flooded district, the embankments are made up from the ditches on each side, a bench of four feet being left between each ditch and the toe of the embankment. Along these benches a post and 5-wire fence is run from end to end. The floods are caused by back-water from the River Maine, at some little distance. Though during floods there is no current along the railway, the waves acted very injuriously on the fresh banks, owing to the large expanse of water. It was found desirable to face the slope on one side, for a considerable distance, with sods, to a height of 7 ft.

On the subject of floods, the author would remark that, in his experience, there is nothing it is so difficult to ascertain with truth as the height of past floods. The only reliable evidence is that a particular spot on the ground was not flooded, though the water reached close to it. Evidence of its having risen to a certain height on a wall, a tree, &c., is quite unreliable, except the height were actually marked at the time. Statements that the water was such and such a depth over a fence or a road are utterly worthless.

The rails are double headed, weighing 40 lbs. per yard, laid in cast iron chairs, weighing 16 lbs. each. The joints are fished with plates, 18 in. long, weighing 12 lbs. per

\* From the *Irish Farmers' Gazette*.

\* "On the Castleisland and Gortalea Railway." From a paper by Charles P. Cotton, past President. Read at the Institution of Civil Engineers, Ireland, on 3rd inst.

\* Afterwards altered to 6½ tons on each pair of wheels.

pair. The sleepers, which were ordered before the question of heavy or light rails, was decided on, are sufficient for the former, being 9'x9"x4" round.

The directors of the Great Southern and Western Railway have given every facility to the promoters to effect a successful start. With their consent, the President of this Institution had an engine constructed for it at the Inchicore Works, from his own design. They also allow the use of their wagons and carriages, and have allowed one through train each day to be run from Castleisland to Tralee and back. From the first it was known that the passengers would be almost exclusively third-class, though, occasionally, a few tickets of a higher class would be applied for. At the same time it was clear that it would be a waste of power to haul a higher class carriage, or even a composite, for the few passengers that would use it. The difficulty was well met by Mr. M'Donnell's design of the combined engine and carriage, which he afterwards constructed, and which has been working the line since its opening. The engine proper is in front; next comes one first-class compartment (eight seats), and, behind this, a guard's and parcel van. The whole is on the one frame, carried by three pairs of wheels under the engine, two coupled, and by a bogie with four smaller wheels under the van. The extreme length from buffer to buffer is 85 ft. The chief dimensions are as follows:—

BOILER.		ft. in.
Length of Barrel	.. ..	7 6
Inside Diameter	.. ..	2 9
Length of Fire-box (inside)	.. ..	3 4
Breadth of Fire-box	.. ..	2 11
Height of Fire-box Front	.. ..	3 9
Back	.. ..	3 3
Thickness of Boiler Plate	.. ..	0 0
Thickness of Copper Plate	.. ..	0 0
Number of Tubes, 104	.. ..	0 0
Length of Tubes	.. ..	7 11
Outside Diameter	.. ..	0 14
Cylinders, Diameter	.. ..	0 10
Stroke	.. ..	0 18
Wheels of Engine Coupled (number), 6	.. ..	8 8
Diameter of Wheels	.. ..	3 8
Bogie Wheels, Diameter	.. ..	3 1
WHEEL BASE.		
Leading to Driving Wheel	.. ..	5 0
Driving to Trailing Wheel	.. ..	5 11
Trailing Wheel to Bogie Centre	.. ..	10 3
Distance between Bogie Wheels	.. ..	5 6
Rigid Wheel Base	.. ..	10 11
Total Wheel Base	.. ..	23 11
WEIGHT.		tons. cwt.
Leading Wheels	.. ..	6 2
Driving Wheels	.. ..	6 5
Trailing Wheels	.. ..	6 3
Total on Coupled Wheels	.. ..	18 10
Weight on Bogie	.. ..	7 17
Total	.. ..	26 7
Heating Surface of Tubes, 317½ square feet		
Heating Surface of Fire-box, 51 square feet		
Fire-grate Area, 10 square feet		
Pressure in Boiler, 140 lbs. per square inch		
Tractive Power per pound Pressure in Cylinder, 40·9		

The tractive power of one of the Great Southern and Western passenger engines, with 5' 8" wheels, 15" cylinders, and 20" stroke, is 66·4 per pound pressure in cylinder, and for one of the heavy goods engines, with 5' wheels, 17" cylinders, and 24" stroke, is 118. At 100 lbs. pressure in the cylinder, this would give the tractive power 4,090, 6,640, and 11,300 lbs. respectively. The mileage run is 50 miles daily, and the fuel used is 10 cwt. of coal, at present costing in Tralee 22s. 6d. per ton. The traffic is small, but increasing, both of goods and passengers. The ordinary train consists of the combined engine and carriage, one large third-class passenger carriage, and from one to three wagons of goods. The cattle traffic on the days of the fairs in Castleisland shows what this engine is capable of doing. From the September fair 57 wagons of live stock were loaded at Castleisland, and forwarded; and from the October fair 50 wagons. The engine took in one rake 29 loaded cattle wagons. There is a turntable at Gortalea, and another at Castleisland. The beams of the table are red pine barks, 12 in. by 12 in., the diameter of each table being 27 ft. 6 in. No gearing was provided for turning the tables, which work rather stiffly owing to the uneven distribution of the weight of the engine when on the table. This would be remedied to a great extent, if not entirely,

by increasing the diameter of the tables. The position of the centre of gravity of the engine divides the wheel base into segments of 15 ft. 9 in. and 8 ft. 2 in., so that if the table had been made 33 ft. long the weight could have been equally distributed on each side of the pivot. With such an increase of length oak beams would be required, but no gearing. The cost of the engine, carriage, and van was £1,475.

In considering the application of this system of light railways to a particular district, there are two questions to be answered:—Will a light engine be capable of hauling the maximum traffic; and, secondly, is the economy of working, combined with the economy of construction, sufficient to warrant the expenditure on special engines?

With regard to the first question, there are here afforded facts from which a sound conclusion can be come to. It is clear what this engine can do from what she has done—the author need hardly point out that the peculiar combination of engine, carriage, and van, so happily devised to suit this case, only affects the general question as far as the engine portion of it is concerned. With regard to economy of working, it is clear that a light engine such as this, if capable of working the traffic, must do so with economy, were it only in her own dead weight.

With regard to economy of construction, it consists of two parts, the determinate one of saving of iron, ballast, and timber, and the intermediate one of materials in under-bridges.

The author thinks that an opinion expressed by the late Sir Charles Fox, in speaking of Indian branch lines, is applicable in every instance to short branch lines in this country. Sir Charles said:—"He calculated six tons on each pair of wheels, and he did so for this reason; he considered that the tributary lines in India, if intended to pay, ought to be worked by the rolling stock of the parent lines. All the rolling stock of the parent lines, except the locomotives, might with safety be carried on rails of not more than 35 lbs. to the yard, but there must be locomotives of not more than 18 tons on three pairs of wheels." Taking, however, the rails at 40 lbs., as in the case of the Castleisland Railway, instead of 35 lbs., as suggested by Sir Charles Fox,† the saving in permanent way may be put at at least £600 per mile. The saving in the cost of under-bridges must always be considerable, depending on the circumstances of each case.

## CORRESPONDENCE.

### REMARKABLE MASONRY CONSTRUCTION AT MELLIFONT (CO. LOUTH).

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—It has occurred to me to call the attention of our architects and builders to what appeared to me to be a peculiarity in the plan adopted by some of the builders of the thick walls now overthrown at Mellifont, these walls having been filled in with small stones and grout in their central parts, but superficially they are composed of large stones, many of them dressed in a peculiar way, so that when laid in their places they inclined towards the centre of the wall.

The dressing of the large stones for this inclination only shows now, where the walls have been split downwards, exhibiting a section which proves that this dressing was done purposely and with much care, for the face of the stones which shows in the wall was quite perpendicular while the wall was standing; but its upper and lower surfaces being inclined, the angle formed by the upper surface and that of the face of the stone was an acute, and not a right angle (as it would be in a modern wall), while the lower angle, formed by the bottom surfaces of

the stone and its face, was proportionably obtuse.

This arrangement was such, it gave a free run to the grout which was poured in on the small stones and rubbish materials used in the heart of the wall, while it hindered the grout running over the front and back of the work.

For the completion of this mode of proceeding, it is manifest that mortar (and not grout) must have been used to point, with plenty of spawls to make the surface of the faces of the front and back of the wall sufficiently "tight" (as a sailor would say) to hold the half-fluid grout when poured in. Should you deem this artful dodge one of sufficient importance, if not noticed before by some of our professional architects or antiquaries, I shall be obliged by your inserting this notice of it in your valuable paper.—Yours, &c. EDWARD CLIBBORN.

Dublin, 3rd Nov., 1875.

### GALWAY—ITS SANITARY STATE, PUBLIC BUILDINGS, &c.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Having had business of a private nature in the capital of the West of Ireland (Galway) a short time ago, I will relate to the public, through the columns of the IRISH BUILDER, the impressions made on my impartial mind, of this hitherto neglected, but nobly-situated port.

The first was a disagreeable enough sight for one's imagination to behold. On going along the Wood-quay or wharf where the Cong steamer, "Lady Eglinton," calls, I espied a floating mass of canineology going seawards with the current, in shallow water, within a pistol shot of the promenade, yet the sanitary authorities and the police remained quite heedless of the nuisance. Should this state of things be permitted, even in Constantinople?

I afterwards visited the reservoirs of the Galway Waterworks, and found the pitching (pavement) uncemented or even stanchied, so that the water pumped into them is permitted to percolate or ooze out through the interstices.

The stench from the grates and gully-traps in the streets is offensive, and reminded one of Dr. Johnson's description of "Auld Reekie" (Edinburgh). When the doctor was reminded by his sycophant, Boswell, that he was then in Edinboro', said in reply, he "thought he was, as he could smell it in the dark."

There is great talk of a graving dock to be built south of Merchants'-road. I could see no preparations. It is to be hoped the engineer, whoever he may be, will not permit it to be left in an unfinished state, like the Waterworks reservoirs.

There is a fine colossal statue of the late Lord Dunkellin in Eyre-square. He must have been a handsome young man. It was whispered he shewed the white feather in the Crimea, but I think this is a *canard*. A Galwaygian remarked to me at the time—alluding to the bronzed face and hands of the figure—"Shure, sir, his lordship was no nigger?"

Sauntering along, I witnessed a pleasing sight indeed, off the bridge connecting the fine court-houses with the gaol on Nun's Island—a shoal of salmon up to 40lbs. in weight, each struggling to get up to spawn in Lough Corrib.

A meeting of town commissioners was being held in one of the two court-houses as I was passing by. I looked in. The appointment of an engineer was the business of the day, which, if you remember, was advertised in the IRISH BUILDER some time ago. There were about a dozen or so selected for consideration, three of whom were from county surveyors, Royal Engineers (*à cheval*), sappers and miners. The chairman ruled in favour of two engineers of some mark, one of whom is Professor of Engineering in Galway College, the other a gentleman of some weight with people in Dublin and elsewhere. The chair-

\* Proceedings Inst. C. E., XXIV., page 369.

† The weight of rolling stock on Indian railways is rather heavier than in Ireland.

man's choice was elected by a majority of only one. The chairman, however, in my opinion, acted unfairly by suppressing the papers of others, some of whom were on the spot, throwing their certificates aside, and saying "He read those before," thereby ignoring the right of the rest of the commissioners to judge for themselves. A friend of mine was a candidate; he had recommendations from three D.L.s., nine J.P.s., seven P.L.G.s., two physicians, and four clergymen of both churches, and yet they were not looked into nor read out for the information of the commissioners. It would, in my opinion, be more for the interest of the Galwegians if their chairman had stopped at home, or would have confined his etiquette to the orderly-room, and not have introduced it into the council-room.

The streets are very well macadamised; but since the last surveyor left there is a tendency to let everything go to ruin in the borough—witness the bridges, particularly the one alluded to above; the ballusters and string-course overgrown with nettles and ragweed, instead of being cleaned at least once or twice a year.

Galway is going *a la reculous* or backwards since the subsidy was withdrawn. We want another such enterprising person as Father Daly or the Rev. Mr. D'Arcy, I.C., to rouse the lethargy which seems to have come over the present generation. Galway should be now a different place to what it is; it is the very best port in Ireland. If the people were only unanimous in it, they would wring from the Government their *lost subsidy*, and also a grant of money for making better shipping accommodation,—but *Divide et impera* is its motto now. Alas! how long will it be so?

MEM. INST. C.E.

Ballinrobe, October 26, 1875.

#### ON CHURCH BUILDING.\*

NOTHING but the cherished hope that the criticism which this paper may call forth, will elicit sound and valuable expressions of opinion, and thereby be somewhat of service to our noble profession and our clients, could overcome the diffidence I feel in venturing to appear before you. The subject is one in which every member of the community necessarily feels an interest, the best and truest proof of which is that afforded by the number of new churches erected by the several denominations which we have seen springing up around us.

As the subject of Church Building has been treated of from almost every point of view by many distinguished professors of our art, I think my better course will be to touch lightly on some cognate matters, and to take a few features which may be locally recognisable, and some of which I shall venture to criticise, even at the great risk of being criticised myself, the more especially as so many outside our profession have honoured us by their presence on this occasion, and for whom a merely technical paper must necessarily possess little interest. Anything I may say in the way of criticism will, I am confident, be taken by my brother professionals in the sense in which I mean it. As to the varied types and arrangement of churches, they are as numerous as "leaves in Vallambrosa," and their several and varied merits having been urged by so many well-known writers on the subject—Pugin, Scott, Street, &c.—I do not propose to deal with this aspect of the matter, except in a general way in passing along.

The first thing we must, perforce, recognise in Church Building is the importance of the substantial character of the fabric; for, unfortunately, many people have seen the church they helped to build, and around which their most hallowed recollections were centred, gone to utter wreck and ruin before they themselves have gone to that "bourn whence no traveller returns," and certainly

this must needs excite melancholy reflections and feelings of indignation against the unfortunate architect whose well-meant efforts were the primary cause of such a dire result. Before my present auditory, it is only necessary to refer to such a deplorable state of things as having been, and to express a hope that it shall not occur again; to enter into the question of how to avert calamities like that hinted at above would occupy too much of your time. Another aspect of this question, and in direct contrast to the foregoing, is that churches which do not come under the foregoing observations have generally, through the advancement of art education, been depreciated in public esteem, so as to render them considered as unworthy of being preserved. Like people who have lived sufficiently long to be out of fashion, their existence is tolerated because it can't be helped. Fortunately, we have fallen on happier times. Our architects are every day becoming more and more familiar with the peculiarities of Church Architecture, and to consider the practice of it as something more than a mere method of obtaining an existence; and the general public have at length discovered that, after all, there is something in Church Building to be considered more than the mere security and substantiality of the fabric—something due to that glorious inheritance of art which has been transmitted to us, and which it is the duty of the architect to preserve and foster so far as in him lies. While we are all striving to foster and develop that idea in the public mind, some of us commit many vagaries, especially in matters of detail, for generally it will be found that those who are not perfectly up in Gothic and kindred styles of art, and who are simply copyists, reduced, as I regret to say often happens, to the necessity of taking a door from here and a window from there, do not, and cannot know how to harmonise and assimilate their borrowed or stolen materials; and the result is a visible discrepancy in all portions of the building, whose author has been indulging in the above practice.

You can see in Belfast churches of various kinds where the front is adorned by handsome doors and windows over, and otherwise decorated with buttresses, carving, &c., while the remainder of the building, flank and rear, although exposed to view, is plain, even to positive rudeness. With some the system seems to be to spend on the front every available shilling beyond what is absolutely required for the mere construction of the rest of the work. The sooner this state of things is altered the better. A church should be consistently worked out in its every detail, and the front, or whatever portion is most exposed, should be the honest exponent of the rest of the building. If the money available will not allow of elaborate detail all round, then it should be distributed generally. Nothing that I know is more disappointing or more calculated to bring an architect and his work into contempt than to see a very gorgeous front, crocketed, carved, and even "gurgoyled;" and when you look "round the corner" you find an entire absence of anything artistic or decorative. On the other hand, it has arisen where the architect has not been restricted in expenditure (unfortunately a rare occurrence) the result has been a lavish and inconsiderate use of most expensive detail. As an illustration of this I may here mention the case of a beautiful church (admittedly the best of all our local churches) recently erected in our midst, but, like all other beautiful things, not without its blemishes. In this church there is, to my mind, an extreme overcrowding of detail of exceeding fineness and delicacy, in positions where, without the assistance of an opera or field-glass, it would be impossible to perceive it. Although the architect of this building is one of the most eminent in Ireland, there is no reason why his work should be above criticism, the more especially as my avowed object is to throw out some observations which may possibly provoke thought on the question as to how money should be spent

most profitably in order to secure an agreeable and harmonious result.

The lecturer proceeded, by the aid of illustrations, to explain his meaning, pointing out what he considered the defects alluded to, and showing, by a rough sketch, in what way those defects might be remedied. That there was precedent for the design referred to was admitted, but they were not always bound to follow precedent when that was ugliness itself. The lecturer then continued—What I wish to show is that the cleverest and most studious amongst us may occasionally perpetrate anomalies of even a glaring character. To thoroughly master the exact principles and the rules of taste, if I may say so, which should govern Church Building, is the study of a lifetime, and it is an art the glory of which when well practised would afford ample repayment. The art and science of Church Building—for the latter is inseparably joined to the former—demand that the architect shall not alone possess an accurate knowledge of construction, and what we call good consistent architecture as applied to each and every feature, but that he should be thoroughly an artist so far as artistic knowledge and feeling are applicable to building. For instance, he must be able to design and superintend colored decoration, stained glass, and be a judge of carving and all kindred works. To give our visitors an idea of the work required to be performed by an architect when designing a church, I will briefly glance at some of his duties. He must plan the building so that it shall be sufficiently commodious, well arranged for seeing, have good acoustic properties, be artistic in its general aspect within and without, and suitable in all its parts. He shall make working enlarged drawings of every portion of the building on which there is any ornamental work; arrange for heating, lighting, and ventilation, and above all, and before all, for the perfect stability of the structure. Our difficulties are almost as numerous as duties. *Imprimis*, our hands are generally tied up, as far as money is concerned. Some clients want at least double the quantity of work that the limited expenditure will provide. Some will have ideas of their own, which they will insist on your incorporating with your design—very likely to its entire destruction. This is on the principle that "whoever pays the piper has a right to choose the tune." Many an unfortunate architect has had to bear the brunt of adverse criticism, when the real culprit was his client. Our chief difficulty, however, is invariably the money one. There is a story related of the elder Pugin, which is not a bad illustration of the case, and of his peculiar character. A certain Irish bishop wrote to him for designs for a cathedral. It was to be immense in size, gorgeous in style, as those of the Middle Ages—to have all the appendages of a complete cathedral, the only reservation being that the tower and spire need not be completed for the present. The cost must not exceed £1,500! Pugin replied, "Say thirty shillings more, my lord, and have the tower and spire at once." To return: I have often found architects of general ability, and for whose works I have a great degree of respect, have no recognition of the importance of endeavouring to acquire a proper knowledge of the beautiful and correct, and that true taste which alone can make the professional life of a Church architect a pleasant one, and render his name worthy of recollection when his career shall have ended.

*En passant*, I may here mention as an illustration of what sometimes occurs in the absence of what I have just endeavoured to point out as a requisite for a designer of churches, that there is in a neighbouring town a new church designed by one of our own members, in the porch of which there is the extraordinary architectural phenomenon of the central pier (the door being a double one) having a capital on a column projecting beyond everything and carrying nothing. It is, I am sure, unnecessary to comment on the foregoing. Everyone will naturally see

\* By T. Hevey, F.R.I.A.I. Read at opening meeting of fourth session of the Belfast Architectural Association, on the 8th inst.



the absurdity of this, and how much it is opposed to every principle of architectural construction. In Church building, as in every other kind, the first principle should be to ornament construction, and not construct ornament. Evidently the gentleman who designed this building must have forgotten this. Another case of misapplication of Church architecture presents itself in a certain church, built, I believe at the cost of the designer, by a gentleman who, in early life, mistaking the groove which nature intended him to run in, served his articles to the profession, but for some reason never practised. Money has not been spared, and the result is a most lamentable one. Leaving taste out of the question, the construction of a new and costly belfry is such that the bell cannot be rung. This is a striking illustration of incompetency, and one which, let us hope, will not be repeated.

Having now disposed of the qualifications for a Church architect, I will make a few sketchy observations on two of the most general types of Church plans. Time will not permit my entering as fully as I would wish into the general question, or into the respective merits of the many systems of planning. Should I have the honour of being invited on a future occasion, I shall go fully into the *vezata questio* as to the most suitable type of church for modern purposes. There are, then, two types of plan in most general use for churches, costing up to £5,000 and £6,000. The one contains nave and aisles, and is rather the more popular plan of the two. The nave is divided from the aisles generally by polished shafts of either granite or marble; resting on the shafts are most often carved capitals. Over the arches is the clerestory, lighted by an ever-varying style of window, depending entirely on the taste of the author and the character of the other features of the design; for it alone is the true architecture which can sustain throughout the proper harmony between the varied features of a church. The nave is terminated frequently by a semi-circular or semi-octagonal apse, the ceiling of which is decorated in colour, oftentimes by a square-ended chancel. This latter method possesses the advantage of allowing a large traceried window sufficiently large for a subject in stained glass, which cannot be possible in the necessarily small windows of an apse. A well-designed and properly carried out church built after this manner, the external features disposed so as to form good artistic grouping, invariably turns out successful. If with a tower there is no rule which can govern its position, depending as it does on circumstances of site, but for the most part it is placed at the western termination of either aisle in small churches.

The other type of church is a parallelogram and perhaps with transepts without aisles, and is the more difficult plan of the two to work out successfully without more expense relatively on account of the unbroken surface of the walls, unless reliefs from arading. The roof, too, being necessarily of a wider span, necessitates heavier timbers, and this again mostly requires stronger walls, the thrust naturally being greater than in the other case. The walls in a church of one span, I find, require for good proportion to be of about a height equal to the width; for instance, if I were planning a church say thirty feet wide in a single span I should contrive to have the side walls from floor to wall-plate about thirty feet also. I will now conclude these hurried and necessarily imperfect observations. If they have given rise to criticism which may elicit anything for the good of our art, I shall consider myself amply repaid for the attempt to get up a paper at almost a moment's notice.

**FINES UNDER THE ADULTERATION ACT.**—The Court of Queen's Bench has decided that the fines under the act of 1860 should be paid into the Borough Fund. Since 1873 these amount to £212 16s., which will be handed over by the Police Commissioners.

## OBITUARY.

## THE LATE JOHN G. A. PRIM.

SINCE our last issue a respected journalist and zealous antiquary has passed away. He died on the 2nd inst., at Nore Cottage, Kilkenny, the residence of his brother. Mr. Prim has been for many years the editor and proprietor of our contemporary the *Kilkenny Moderator*. He was a constant contributor to the transactions of the Royal Historical and Archaeological Association, and his writings on antiquarian matters were varied and always of interest. Not only by his associates but outside them will his loss be felt, for men are few now in this country who esteem it a labour of love to elucidate the antiquities of their native land, or aid in preserving her national monuments. Mr. Prim has died at the comparatively early age of 54, and as he was respected in life for his many good parts, deep regret is shown above his grave by all who knew him.

## CIVIC LYRICS.—No. XCVII.

## THE CITIZENS' CURSE.

When our Old Town was clean,  
I cannot say what year,  
But think it may have been  
The reign of Gobhan Seer,  
That great old builder had  
Built sewers here, of course;  
His works were never bad,  
And use made them no worse.

But times have changed since then,  
And men have changed as well;  
We plot and plan, and when  
We build, we "build to sell."  
Alas, alas! 'tis sad  
To witness this perforce!  
Long since our state was bad,  
But now 'tis ten times worse!

Oh, save us from our friends!  
The blood that's in our veins,  
Each time we breathe, it blends  
With poison from our drains!  
We're drugged and drained, and mad,  
And, gasping out, we curse—  
"Down, down with rule so bad!  
Our state can be no worse!"

CIVIS.

SUPPLEMENTARY NOTES IN RE  
CITY IMPROVEMENTS.

THE Corporation have contracted with Mr. Robert Worthington, of Island Bridge, for laying down 40,000 square yards of Liummer Rock Asphalt, of which 7,000 yards are already executed in the city. The above is for footways alone. There is a foundation of 8 in. of concrete, and  $\frac{1}{2}$  in. of asphalt, the price being 5s. per yard; we understand the price charged in London is 5s. 6d. It may be added here that it is much superior to the asphalt laid in Kingstown, which was only  $\frac{1}{2}$  in., and without concrete foundation, the price of which was 3s. 6d. In London at present this company is laying 40,000 yards in Hackney, and 20,000 in Lewisham, at 5s. prompt cash. Here the terms are credit by bonds bearing interest. We have seen the work executed in London by this company, as well as that in Dublin, and both are creditable workmanship. The following is an enumeration of the places where the work has been recently performed in this city:—Baggot-street, Mount-street, Charlemont-street, Richmond-street, Sheriff-street, Aston's-quay, Great Britain-street, Aungier-street, Lower Abbey-street, Lombard-street—in all 7,296 yards.

Since writing elsewhere in these columns, we are glad to perceive further steps have been taken in the matter of dangerous structures in the city. Several additional cases have been brought before one of our city magistrates, and sworn by Mr. Parke Neville, the Borough Engineer, to be unfit for human habitation. Orders were accordingly made by the magistrate for their taking down or substantial repair.

Mr. Cornelius Dennehy, a member of the Corporation of long standing, writes at some length on the present aspect of the Main Drainage scheme. He says the ratepayers

and citizens have good reason to thank the Government for refusing to advance money to carry out the scheme. He states that it was always his conviction "that the human mind could not devise a plan of main drainage for a city more objectionable in every way, or one that would do more injury to the health of the inhabitants than that proposed to be carried out by the Corporation." Mr. Dennehy turns back to the simple Main Drainage plan brought up by the City Engineer in 1853, by intercepting sewers, the estimated cost of which was £30,600. He thinks that if this plan was carried out now, it would be all that would be required for the purification of the Liffey.

The engineer, in his report in 1853, acknowledges that similar plans by way of intercepting sewers were proposed years previous by Alexander Nimmo, and again by Robert Mallet and again by Mr. McClean. The intercepting sewer idea is older than the time of Nimmo—it dates from the last century. It is also broached in Mr. Hely Dutton's "Observations on Mr. Archer's Statistical Survey of the County of Dublin," a work published in 1802. This aside, however, we trust the Corporation will lose no further time in striving to grasp what is beyond their reach, but set to work and do what is within their powers for the sanitary improvement of this long-neglected city.

PROPOSED MARKETS FOR THE  
CITY.

In the absence of any movement being made by the Corporation in the matter of providing suitable markets for the city, a number of merchants and others have decided to apply to Parliament for powers to enable them to form companies for the erection of one on each side of the city. We hope the promoters will carry out their intentions. It is most desirable that the wretched structures at present standing on the sites proposed to be utilised should no longer be suffered to disgrace the city.

## BOOKS RECEIVED.

*A Practical Manual of House-Painting, Graining, Marbling, and Sign-Writing. With nine colored Illustrations of Woods and Marbles, and numerous Wood Engravings.* By Ellis A. Davidson. London: Lockwood and Co. 1875.

THIS book fully bears out its title of a "practical" manual. In addition to the special information for house painters and decorators, it embraces a large amount of matter which will be valuable to the general public. The colored plates of woods and marbles are executed in the first style of chromolithography.

*On the Construction of Large Sluices for Irrigation and Navigation; also, a Letter to the Landed Proprietors and Gentlemen interested in the Drainage of the Shannon.* By F. G. M. Stoney, Mem. Inst. C.E.I.

THIS is a paper read for the author before the Institution of Civil Engineers of Ireland last May, and noticed by us at the time. In its book form, as now before us, and with the aid of several well-executed lithographed plans which accompany it, the professional man can have no difficulty in comprehending the plan proposed by Mr. Stoney for the Drainage of the Shannon. The author has done well in publishing it.

## TIMBER SALES.

IN our advertising columns will be found announcements of three sales to take place during the current month in this city. The first will be of mahogany by Mr. George Bell, Sir John Rogerson's-quay; the second of memel, red pine, and deals, by Messrs. John Martin and Son, North-wall; and a third of various descriptions, by Mr. Wm. Carvill, Custom House Docks. They are all well worthy of attention at the present season.

## HOME AND FOREIGN NOTES.

**ROYAL DUBLIN SOCIETY.**—The first Evening Scientific Meeting of the 145th Session of the above society will be held this evening. Mr. J. A. Fahie will read a paper on "The Rhea Fibre and its Mechanical Treatment," and Mr. R. J. Moss one on "An Improved Chemical Vacuum."

**THE DUBLIN SCHOOLS OF ART.**—The Schools of Art at the Royal Dublin Society, Kildare-street, have lately received from the South Kensington Museum a collection suitable for models or studies. Amongst them are specimens of art workmanship of various countries, continental and others.

**POWERSCOURT HOUSE.**—Considerable improvements have been effected on the garden front of Viscount Powerscourt's residence, in Powerscourt demesne. The work was from the designs of Mr. Penrose, architect, London, the builder being Mr. George Moyers of this city. The cost was between £4,000 and £5,000. The chief improvements consist of broad and long terrace, with descending central steps, basins, fountains, and works of statuary and other ornamentation. The clerk of works, Mr. Hawkins, was presented with a tea service by Lord and Lady Powerscourt, as a mark of recognition for his satisfactory services.

**THE GRATTAN STATUE.**—The committee a few days ago received a letter from Mr. Teniswood, executor under the will of the late Mr. Foley, stating that probate having now been granted, the only obstacle to the forwarding of the statue of Grattan to Dublin had been removed; that it was already packed, and that it would be forwarded on that day to Dublin, and would be placed on the pedestal in College-green before the end of the week. Mr. William Murphy, architect, has charge of the arrangements here, and Mr. Browne, a skilled assistant in Mr. Foley's studio, will accompany the statue to Dublin.

**THE DEATH OF MR. J. F. DANBY.**—We record with regret the death of this artist. His name and works for many years were well known in Dublin, for he was a frequent exhibitor at the Royal Hibernian Academy and other exhibitions. He was the son of Francis Danby, R.A., of Wexford, but he was born in Bristol in 1816. He recently became a member of the Society of British Artists, and before his death had completed three pictures for the exhibition of the above society. His sunset pictures will be remembered by old visitors to the Hibernian Academy. In this country he had many friends who appreciated his worth and valued his acquaintance. He had considerable attainments as an artist, and he was generally respected by all who knew him.

**A WORTHY CANDIDATE.**—A Burgess of "Mud Island" seeks the honour of a seat in the Cork-hill Council. He does not announce that he has been a Home Ruler all his life. From his lengthened knowledge of the locality in which he resides, he has no hesitation in pledging himself to vote for

"CLEAN STREETS! AND LOW TAXATION!"

He hopes that the fact of his having for some time practised at "the bar" will not militate against his success on the 25th. His address has not as yet appeared in print.

#### SANITARY AND OTHER NOTES.

**STRABANE.**—In the matter of a water supply for this town, for which Mr. Doyle, C.E., prepared plans, discussions have ensued which have led to delay. It is now proposed that Messrs. Doyle and Barnes should act jointly in the carrying out of the work. A motion having been passed at a previous meeting of the union sanitary board, sanctioning the appointment of Mr. Barnes, C.E., a member of the board, at last meeting gave notice that he would move a resolution at next meeting, that the resolution appointing Mr. Barnes as sole engineer to carry out the plans of the Knockavoe scheme for a water supply to Strabane, be rescinded, and that Mr. Doyle be appointed jointly with Mr. Barnes to be the engineers to have those plans properly executed.

**KILKENNY.**—A Mr. Crotty was summoned for keeping large manure heaps in his yard at Parliament-street. A member of the sanitary board said in case of fever he would not be responsible for the results. Mr. Crotty replied that he had the largest family in Kilkenny, and never found it necessary to call in a doctor! Some men can vegetate amidst poison, but that is no reason why they should be allowed to poison others. Apart, we congratulate Mr. Crotty and "the largest family in Kilkenny" for their exceptional good luck through life, and we hope that what he has saved in doctors' fees has gone towards the education of his large family.

**ARMAGH.**—The Town Commissioners of Armagh have ordered a mud cart—"a superior article, suited to the requirements of the city." The estimated cost is £20, with a deduction of 2½ per cent. for prompt payment.

A gas company at Blackpool have been fined £20 for supplying impure gas to the inhabitants of that town.

#### TO CORRESPONDENTS.

**ARCHITECTURAL ASSOCIATION OF IRELAND.**—As will be seen by our present issue, the opening meeting of the ensuing session of the association will take place on the 28th inst. It would be highly desirable to see the meetings better attended than was the case during the last session. If the classes of Design and Construction are to be productive of benefit to the younger members of the profession, and to the practice in relation thereto, increased interest must be manifested in the studies intended or provided for these classes. Earnestness and a little self-denial are needed. The activity evidenced by kindred associations elsewhere ought to be a spur to renewed exertion on the part of the members and aspirants to the profession in this city.

**GAS ENGINEER.**—We sympathise with the defeated plaintiff; he has been hardly used, but we hope that he and his brethren will keep their eyes open in future when they have to deal with public bodies. We are not quite sure but he would succeed in an action against certain individuals, though he has failed in suing them in their public capacity.

**CLONIFFER.**—We have spoken elsewhere of the Drumcondra Sewerage Scheme. It is not our province to point out a remedy, or rather supply a plan. There is plenty of available talent in the city that could be utilised on the usual conditions. Doctors do not give advice and medicine gratis.

**M. J. S. (London).**—The members of the "Irish Society" may be quite as upright and as honourable men as any living. We do not attack individuals; our purpose is merely to show the origin and surroundings of a bad system, and the evils attending its continuance. Reform is always unpalatable to many, but it is nevertheless necessary at the present day, and particularly in the present instance.

**AN OLD CITIZEN.**—The matter would, no doubt, be interesting.

**R. M. Y. and J. J. P. (Belfast).**—Thanks for your communications. Our columns are always open for the publication of such matters.

**P. FLYNN (Correboy, Athlone).**—Stamps received.

**W. H. B.—O. B.—An Old Subscriber.—R. H. A.—R. C. (Edinburgh).—S. E.—J. K.—M. D., &c.**

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#### NOTICE.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

Correspondents should send their names and addresses, not necessarily for publication.

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# The Irish Builder.

VOL. XVII.—No. 383.

## Projected City Improvements. STREETS AND MARKETS.

REFERENCE to our City annals and the records of our public bodies—boards existent and abolished, shows how slow we have moved in the matter of urgent improvements in this city during the last half-century. Many of the public works intended

by the Irish Parliament, the old Corporation, and the Wide Streets Commissioners of our early days, remain untouched. The Irish Parliament before 1800, through its votes, added much to the architectural improvement of our city; and the Wide Streets Commissioners accomplished important and valuable street improvements. Some of the last works executed by the latter body, we believe, were the widening of the top of Grafton-street, entering into Saint Stephen's-green. About the same time the great improvement took place in Nassau-street, by which the dead wall that enclosed Trinity College grounds on that side was removed, and a handsome iron railing supported by

a granite base erected. This work, in design and workmanship, was well conceived and executed.

The Wide Streets Commissioners were appointed as far back as 1757, and their first work was the opening of a passage from the Castle to Essex Bridge. The next improvement was the opening of Dame-street, so as to form a suitable avenue from the Castle to the House of Parliament (now the Bank of Ireland). Next followed Westmoreland-street, Sackville-street (formerly Drogheda-street), Cavendish-row, and quays and passages along the river on each side. To the above important works may be added the opening of D'Olier-street and Great Brunswick-street, and some others of lesser note.

Since the Wide Streets Commissioners were abolished, and superseded by the present Reformed Corporation upwards of thirty years ago, no such street improvements as the above have been carried out in Dublin, although the city has been greatly extended since that period.

One great improvement still urgently needed—which was intended by the Wide Streets Commissioners, and which they determined to accomplish, for it was debated before their body previous to 1820—was the opening of a street from the end of York-street in nearly a straight line to St. Patrick's Cathedral. We had hoped years since to have seen this improvement carried out by the Corporation; and, later again, when the late Sir Benjamin Lee Guinness was carrying

out the work of "restoration" at St. Patrick's Cathedral, we thought that some energetic movement would have been made to carry out this long-desired improvement. The value and public benefit, in a sanitary sense alone, of having a direct communication between St. Stephen's-green and St. Patrick's Cathedral is apparent to everyone who considers the subject for a moment.

We must not omit taking notice of the other great improvements carried out by the Wide Streets Commissioners in the vicinity of Christ Church Cathedral, whereby the narrow Skinners'-row became the spacious Christ Church-place. The supplement to this is the long-projected new street from Cork-hill to the Cathedral.

The markets of Dublin during the entire of the present century were nearly, as a whole (from the evils attending their construction and management), in a bad and unsanitary state. The majority of them were narrow, choked-up passages, badly drained and badly ventilated. We are glad to see at last that some steps are about being taken by the formation of public companies to remedy these defects by erecting new markets. We have long advocated a reform in the matter of our public markets, and it is a work that more properly belongs to the Corporation to perform than through public companies. At the same time we will be pleased to see the reform carried out efficiently, no matter through what medium.

Writing in 1802, Mr. Hely Dutton, in his "Observations on Mr. Archer's Statistical Survey of the County of Dublin," directed attention to the then bad state of our city markets. Castle Market was described as a wretched, ill-contrived one, and it was hoped that the Wide Streets Commissioners would effect an improvement. The New Market was stated to possess every defect of Castle Market, and Patrick's Market was described as still worse, to which the danger of floods from the Poddle river was to be added, inundations being at that time frequent in Patrick-street. As year by year passed, down to our own day, Patrick's Market grew worse and worse, and the present thing called a market is unworthy of the name. Sir Thomas Blackhall built higher up, in a more healthy situation, a market, but, according to Mr. Dutton, even in 1802 the butchers seemed to prefer "their old dirty situation, and the new market is almost uninhabited." During our own memory Bull-alley Market, off Patrick-street, has been a dingy, dirty, and suffocating passage, and enough in appearance and smell to turn any person against eating butchers' meat for the remainder of their lives after they once beheld it.

In 1802 the Vegetable Market in Mary's-lane was "the most wretched and inconvenient one that can be conceived," and so it continues down to our own day. The worst piece of ground which existed for many years at the reere of Dominick-street, through which the present King's Inns-street is constructed, was pointed out by Mr. Dutton as a suitable place for the erection of a new market. In his day, and in our own memory, this spot of waste ground was a kind of "shoot," where all sorts of rubbish was shot down; and, at the close of the last century, and, for some years in the present century, it was a noted rendezvous for robbers.

And, writes Mr. Dutton, in reference to the above:—"The Fruit Market should also

be placed here, but apart from that for vegetables; no person will deny that the present one on the Coal-quay is a most dirty, uncomfortable one, for both buyer and seller, that can be seen anywhere. A potato, egg, and fowl market might also be placed here, as the more they are connected the more convenient for both buyer and seller."

The above suggestions were well timed when they were written, but they were overlooked, and our city markets continue a disgrace down to the present. The old Corn Market of the City was also quite inadequate, and continued so for years. Mr. Dutton was of opinion that it might be brought into contact with the other markets he mentioned.

The new Meat Market, erected by Mr. Cash, in Great Britain-street, was spoken of favourably by Mr. Dutton, but it had the same defects as the other markets—want of room. It was always most difficult to force one's way through Britain-street market from its narrowness and the concourse of people, particularly on Saturday nights. This, however, was before the butchers were allowed to spread themselves over the city. Clarendon Market, in Mr. Dutton's opinion, was well designed, but when he wrote of it it was half untenanted.

What all the above markets became afterwards, and what they are now in appearance and condition, need hardly be stated. Suffice to say, as we have said already, our public markets are a disgrace to the age. Some of the street improvements mentioned above, as being carried out by the Wide Streets Commissioners, were pointed out by Mr. Dutton in his "Observations."

When the new projected markets are constructed, north and south of the Liffey; when the Port and Docks Board effect the needful alterations in Carlisle Bridge, and construct a new bridge further down the river near to the Custom House; when the Liffey is freed from pollution by intercepting sewers as an instalment of a well-digested scheme of main drainage, to be carried out when the financial circumstances of the city will warrant it; when our streets and courts are better drained, paved, and cleansed; when all dangerous structures are pulled down, and public obstructions in our thoroughfares are removed; when our Corporation gives over political wrangles, and exercise economy in the expenditure of the ratepayers' money; when these and other evidences of an improvement take place, Dublin may begin to hold up her head among civilised cities. Did we say civilised? Yes—a people are but half-civilised who could allow their local rulers so long to neglect the vital interests comprised in sanitary reform, which includes all needful public improvements.

## THE LITERATURE OF GOTHIC ARCHITECTURE IN IRELAND.\*

A MINUTE account is given by Mr. Brash of the architectural features and peculiarities of Cormac's Chapel, Cashel, and the Round Tower upon the Rock, which is certainly the oldest structure standing there. Nothing is wanting to satisfy the reader as to the history of the edifices, for they are well described and illustrated by measured drawings, plans, and elevations. The Round Tower at Cashel still retains its conical stone roof, springing from a projecting eave

\* See ante.



course. The masonry of the tower is stated to possess some curious features. It rises from a plinth of 6 in. projection for 5 ft. in height, it is built of freestone in irregularly squared blocks, then comes a long patch of limestone about 4 ft. high, roughly built, the stones cracked and damaged and bearing the appearance of a repair. Next succeeds about 6 ft. high of freestone masonry, in blocks, roughly dressed, but without spawls, and from this upwards the work is of an even character, being freestone, in irregular courses from 7 in. to 12 in. high, rough squared, but closely laid, exhibiting an admirable piece of work. These features in the nature of the stone would appear to bespeak frequent restoration at various periods.

Speaking of the masonry of Cormac's Chapel, Mr. Brash says it is of a very superior character, the material being a hard, close-grained sandstone, originally of a light brown or buff colour, but, from the growth of lichen, now showing grey and reddish tints. The cathedral, it is observed, and all the mediæval buildings are erected of the limestone rock on which they stand, the Round Tower and Cormac's Chapel being built of freestone. The material is laid in courses of small ashlar, varying from 6 in. to 9 in., neatly dressed on the face, and truly squared on beds and joints, laid very close, with little mortar. "In truth," continues Mr. Brash, "I have seldom seen a better executed piece of masonry, despite the weather-wear of over seven hundred years. The character of the work is particularly observable at the north side, which has had the shelter of the chancel wall, and also in the interior of the towers, which are as carefully finished as the outside, and look as if the masons had only struck their scaffolds. Here the faces of the blocks are chiselled diagonally from angle to angle, and not vertically or horizontally, as in modern work."

The roofs of nave chancel and sub-chancel are wholly of stone, having more than an equilateral pitch, the lines of the roof being kept parallel to produce symmetry on the barge courses. The outer casing comprises good sized blocks of ashlar breaking joint, but so carefully bedded as to have been impervious to moisture. This is the sort of construction that we would like to observe in the present day, but too often, alas! we build only for a lifetime instead of for ages like the old Celtic masons. We cannot resist quoting further in reference to the grand masonic construction of Cormac's Chapel, the roof of which Mr. Brash, as well as others, are proud of admitting as a triumph of constructive skill. "It could not be supposed that a right-lined stone covering of the span and great weight of this roof could sustain itself like the stone roof of the chancel of St. Molua's Church, near Killaloe, accordingly we find that it is supported by an internal arch of an acutely-pointed form—a perfect Gothic arch, constructed between A.D. 1127 and 1134, long before such a feature was known in the sister island. These supporting arches are not built either of sandstone or limestone, but of small cubical blocks of a hard but light and porous material, known as calc-tuffa. Where this was procured, I am at a loss to conjecture; I am not aware of the existence of any deposit of such a material in this country, and must therefore presume that it was an imported article. If such be the case, Irish commerce embraced a greater variety of foreign products than we have hitherto considered probable. We have ample evidence that at as early an age Caen stone was imported by Irish builders, for mouldings and carved work, into districts which did not produce freestone."

The chancel, as described by Dr. Petrie and Mr. Brash, and others, is an interesting feature, inclusive of its ornamentation; but we must refrain from going into a long detail. Its dimensions are 18 ft. 8 in. in length by 11 ft. 6 in. in breadth, clear of the walls. It is groined by diagonal ribs, moulded, their intersection being covered by a boss of four human heads. The north and south walls

have arcades of arches, supported on three-quarter columns with base and carved capitals. Dr. Petrie illustrates several of the capitals, bases, and terminations of the label mouldings, &c., in his work, and some of these in connection with the nave and chancel are reproduced by Mr. Brash. They are worthy of study by all who desire to have a knowledge of ancient Irish art and architecture.

Remains of fresco work in this country are scarce, but there can be little doubt but many of our ecclesiastical edifices before spoliation overtook them in former reigns, contained good specimens of fresco painting. In writing of Cormac's Chapel, Dr. Petrie stated in his work—"The whole of the vaulted roof as well as the sides of the chancel, appear to have been richly painted in fresco, in which the prevailing colours used were red, yellow, brown, and white. In the small side recesses curtains were represented, and arches were depicted on the ceiling. These frescoes are obviously contemporaneous with the building." We would like to be assured of this. As to these frescoes, Mr. Brash has no doubt of their existence, although he was unable to trace them, owing to the extreme darkness of the chapel on the occasion of his visit. Traces of such decorations in other ancient buildings in Ireland have been before observed by Dr. Petrie, Mr. Brash, and other native writers. It would be interesting to know at what period fresco-painting was first attempted in this country, whether the artists were native or foreign, and if the method practised here was identical with what was practised abroad. We are not aware that there is any descriptive account of examples of fresco painting in Irish churches and abbeys, save some scattered notices of the existence of such remains to be found in a few native publications, published years ago. Whether the offer of a prize would produce an essay or a small work on evidences and examples of fresco painting in Ireland, we are unable to say. The subject is, however, worthy of consideration.

In concluding his notice of Cormac's Chapel, which is well described and illustrated, Mr. Brash bears evidence to the admirable manner in which Dr. Petrie has delineated the same, and speaking of his own effort says:—"I have thus endeavoured to picture this curious and interesting edifice, which must be seen and carefully studied to be appreciated. It is a lasting monument of the love of stone construction inherent in the old Celtic masons. I only wonder that the door-leaves were not slabs of stone, such as their ancestors constructed on the banks of the Nile and in the Giant Cities of Bashan." Truly indeed may he and others marvel at such triumphs of masonic skill.

Kilmalkedar Church, County Kerry, is another very ancient edifice, minutely described by Mr. Brash. An excellent monograph of this church has also been published by Mr. Arthur Hill, architect, of Cork. Our annals would appear to supply us with no history concerning this ancient structure, at least as far as our accessible annals are concerned. What may be its date we can only surmise. The nave of the church, Mr. Brash says, was probably built in the middle of the eleventh century, and the chancel in the twelfth.

Mr. Marcus Keane, in his "Towers and Temples of Ancient Ireland," describes it as one of the most interesting ruins of the so-called Norman style in Ireland. In closing his description of this ancient church, Mr. Brash remarks:—"Surely the Gaedhil must have made a very remarkable progress in civilization and the arts of civilized life when, in this remote district, craftsmen could be found to design and execute such a work. They were the successors of the men who built the great primeval fortresses of Staigne, Ballycarberry, and Caherdaniel; of the stone-walled cashels and stone-roofed dwellings so numerous in the same district; and, at a later period, of the stone-roofed oratories of Gallarus and Kilmalkedar."

Speaking of the remains of ancient architecture at Ardmore, County Waterford, which comprise the Round Tower, the leabha or oratory, and the cathedral, Mr. Brash draws instances in comparison in the matter of the masonry of each. He says:—"I cannot refrain from remarking upon the curious considerations that arise from a comparison of the masonry of the three structures. Tracing down from the earliest erected to the latest, we should expect to see a gradual development of the masonic craft, and that the walling of so important a building as the cathedral, erected in the end of the twelfth century, should be of a finer class of work than that of the fifth-century oratory; yet, strange to say, the contrary is the fact, while the fragments of the walls of an intermediate church, probably erected in the eighth or ninth century, and preserved in the cathedral (in accordance with a praiseworthy ancient custom, of which we have many examples in Ireland), shew the same marked distinction. Again, we find that the masonry of the Round Tower is of a far superior class to that of any of the churches. I am aware that it has been asserted that this tower was coeval with the cathedral, and erected as a detached belfry to it; but, as far as the characteristics of the respective structures reveal to us, no such conclusion can be drawn, as there is not a feature in common between them; neither can it be credited, that the pious hands which raised those venerable walls, when Ardmore was the seat of a bishopric, would have used so inferior a class of masonry in its construction, while they erected this detached tower, at a distance of 70 ft., of the very finest class of ashlar masonry. We know that the Christian Temple has always been the very first consideration, and that no matter how poor the congregation, their very best efforts and means were always devoted to erecting and beautifying it."

Very good reason and argument, and whatever they may fail to show, they certainly do not fail in proving that the Round Tower and the cathedral are not coeval. Mr. Brash continues:—"We must conclude that, plain as is its masonry and few its ornaments, it was the best they could accomplish, and that the erection of such a costly and splendid piece of workmanship as the Tower could not have been undertaken at the same period and by the same builders. As a practical question of relative value, the walls of the cathedral could have been erected twice over for the cost of the Round Tower, remembering that the materials of the former were procured on the spot, and used undressed, while those of the latter were brought from a distance of five or six miles, and finely wrought on beds, joints and faces, both for the external and internal walling, while the cost of labour increased every foot in height the structure was raised. It is not my intention to go into the question of the age of this Tower, which presents to us very peculiar features, but I contend that no inference as to the date of its erection can be drawn from its architectural features, which are such as may be found in buildings of even a pre-Christian age."

The Romanesque or Hiberno-Romanesque period, as we have already remarked, has been treated at considerable length by Mr. Brash, and a large mass of historical and architectural matters, of national and general value, are to be found in his chapter devoted to the subject. We must, however, pass on to "The Cistercian Order and their Churches" in Ireland, and other matters in connection.

DR. THOMAS OLDHAM, F.R.S.—Amongst the awards of medals in the gift of the Royal Society for the present year, there was one to Dr. Thomas Oldham, F.R.S., for his long and important services in the science of geology—first as a Professor of Geology, Trinity College, Dublin, and Director of the Geological Survey of Ireland, and chiefly for the great work which he has long conducted as Superintendent of the Geological Survey of India.

## ARTISTIC DRAUGHTSMANSHIP.\*

GENTLEMEN,—Your secretaries have placed before you a very honest and straightforward report, in which, in a spirit very much to be commended, they have not tried to mildly extenuate our shortcomings, but have told us plainly enough that the work of the Association has not been quite encouraging or what it ought to have been in the past session.

It would, perhaps, have been more elegant and dignified for me, called for the first time to a President's chair, and looking to the honors of publication, to have ignored the fact which the report suggests, and to have used in touching upon the affairs of the association that vehicle of language which the diplomatist has described as 'given to man to conceal his thoughts'; or I might have avoided the petty details of the working of the Association, and soared among æsthetics and the past glories and future destinies of our Art in discourse such as Valentine Vausden's chair reminds him of—"A choice speech in the Corporation of Dublin, where the gilding completely obscures the original design." But I do not think, knowing each other as we do, that this is what the Association would look for from me. I mean to say a few words to-night on the shortcoming of this Association to meet the great and useful work its promoters had the spirit and intelligence to design it for, on our position in the scale of education, and our backwardness and want of due energy as architectural students when compared with the rest of the world.

It has been my lot lately to be withdrawn for a short time from the round of every-day duties, and—looking more widely abroad—to ponder much on the startling development of the History of architecture which my own short period of identification with it in the past twenty years has witnessed; on its present position, and what I believe to be the yet more remarkable phases on which we are about to enter. My thoughts have turned, too, with some swell of patriotic pride for the country to which I am well content to belong, to the position of honor which Ireland may hold in the future of our Art; and, bound up with this last consideration, an anxious comparison of the status of education and efficiency of our architectural students—the coming men—with those elsewhere.

Just at present, public spirit for the advancement of our national architecture is at very low water with us. There exists in the professional mind generally in Dublin some vague idea that such an association as this is—somewhat praiseworthy in its motives, and even, perhaps, in some degree likely to be beneficial to the young men belonging to it. I don't hesitate to say that there are quarters where this association is regarded with total apathy or scarcely concealed contempt. There are always in the ranks of the profession some men whose narrow minds cannot soar beyond their own offices, and, as they would express it, what 'jobs they can get'; but it is to me matter of amazement that among many who really love their art for its worthy sake, take interest in its great history and progress, and have some patriotic spirit for the credit of Irish architecture, there exists so much shortsightedness as to the crying necessity there is for such an association in our midst. It is my conviction that if ever there was a time in the whole history of architecture when every nerve should be strained to stimulate architectural education, higher and far wider in scope than has been prevalent heretofore, it is this in which we are now living. There are changes abroad of which our little community here, in a complacent fools' paradise, is taking no note, and, ably as Irish architects have upheld the credit of their country heretofore, an era has come upon us when the education and attainments which sufficed for them will not serve this and the coming generations of architects.

In this extraordinary era of development on which we are entering, I venture to give young Architecture as represented by this association my candid opinion for what it is worth, that we are falling miserably behind the rest of the world in the scale of educational attainments. All honor, I say, is due to the public spirit of those young men large-minded enough to recognise some deficiency, and who attempted to meet it by the formation of this association; but I venture to tell their brethren who have not backed them in their efforts, but who are aspiring to the profession, that a time is coming when young Irishmen will not go, as I am proud to say many have done in the past, to be first the able assistants of English architects and ultimately successful competitors with the architects of the whole kingdom. Already it is beginning to be recognised that an architectural assistant 'up to the time of day' is not (or very rarely now) an article of native Irish manufacture. Architects in good practice see their own pupils ebb and flow, and none qualify as they did in their day to fill the assistant's chair in their master's office, and it is a matter of every-day experience for me to hear architects express their desire to import a thoroughly qualified assistant from London or elsewhere. I am rather glad of this on the whole. The gentlemen who have been or may be imported into our midst will always have a cordial Irish welcome, and I would rejoice if this portentous movement would open the eyes of our architectural youth to the fact that it means something serious for their future prospects of being successful men.

Believe me, a time is coming when less than ever will favour and affection or social connexion stand a young Irish architect in place of the weapons of knowledge and skill. The fact of the matter is, that the time is gone by when within the four walls of a master's office can be attained the whole art and mystery of contemporary architecture. The complacency of parents and guardians who hug the delusion that it is so still, and the happy indolence of their offspring or wards as the case may be who desire to indulge it too, is often astonishing to me at this time of day.

Time at disposal will not permit me to enter to-night on the constructive branch of the profession, and our backwardness in this which would be a matter for not one but many discourses. I shall deal only with one detail of the Fine Art side of our pursuits. I say that we are backward and deficient—woefully so for the time of day—in knowledge of Styles, Design, Decorative Art applied to architecture, and artistic skill in draughtsmanship, and to this last detail of study I shall confine my remarks. Other men elsewhere draw better than we do, and we should look to it. When I look at the amazing proficiency which the rising generation of young Londoners have attained to, chiefly under the fostering development of the London Architectural Association, and the superlative advantages for improvement which are to be had there and so well taken advantage of, and when I look at the heavy disadvantages under which we labour, I confess I grow despondent about our future place in the race. I shall be told perhaps of what brave show has been made by our architects in past times; but I reply past times did not dream of looking to the architect, such as he was understood to be but the other day, for such requirements as are now looked for from him as a matter of course.

I would ask you to note an extraordinary fact illustrative of this development. For thirty years a great national scheme of Art education as applied to manufactures has been in operation under the rule of South Kensington. That it must have effected great good for the country on the whole may be admitted, and what the country would be in the scale of Art without some great attempt at such regeneration it is appalling to contemplate. It does not, however, amount to a libel to say that in the great and primary object set forth—that of producing designers

of art manufactures—the Kensington system has been a comparative failure.

It is a further remarkable fact that if we were to look into the origin of the design of some of the finest modern works—art-furniture, applied decoration to buildings and furniture of every sort, ceramic manufactures, textile fabrics, gold and silversmith's work, and works in the baser metals, stained glass, illumination, and even needlework and embroidery—we find the ablest, most practical, and vigorous of the army of designers are recruited, not from the leviathan manufactory of Kensington, but from knots of rising architects and their immediate associates!—from a self-formed school which has arisen of itself in our midst. Again, nothing is now commoner in our picture exhibitions than to find architects straying into the painter's more legitimate field as exhibitors of landscape or figure subjects. Look at how much all this implies: how much it indicates not only of knowledge of architecture in its stricter sense, but of the decorative art of all times and nations, facility in drawing the human figure, knowledge of perspective, and mastery of the use of color, and one must admit that the versatility of architects' study is indeed developed beyond what it once was.

When I say that we look in vain for proficiency in these modern accomplishments among our little school here in Dublin, I am only stating a melancholy fact. I am as painfully alive to the heavy disadvantages under which we labour in facilities for acquiring it as any man can be, and they are these which are no fault of ours; we do not enjoy the presence of innumerable great examples of Architecture ever under our eyes. We do not possess in every hamlet, village, and country town some more or less glorious example, of Mediæval Art more especially, to be studied and sketched, as does the more favoured Englishman. Further removed from the great centres of wealth, we do not see daily the varied and vast employment of many materials and novel arts in building; we have not—and of this I take a right to make an Irish grievance and speak in just resentment of a fault somewhere—any Museum of Art. Further, owing to our absence from the great sources of wealth and expenditure upon the present sumptuous surroundings of architecture unequalled in our history, we are not called on or stimulated to develop these more novel powers. So much for our misfortune, but how much now for our fault? Still would I cry with one of old, but with more justice—"Ye are idle, ye are idle." Ye have the wherewithal of some straw to make your bricks. We are all idle!

Very much more we might do, wherein our backwardness is a disgrace. I still speak of one branch of knowledge—draughtsmanship. Candour compels me not to shirk personal allusions, and I tell you it does not want the advantages of London residence and superior encouragement to produce able draughtsmen and artists such as, for instance, two I will name who in the great competitions of the whole profession have upheld the honour of our country against the best comers. William Henry Lynn and Thomas Newenham Deane, mere Irish-bred artists, have, I say, done this, and—as I shall tell you from the knowledge of intimate friendship—not with the adventitious aids of vicarious design and hiring art, without calling on the architectural undertaker of 'perspectives neatly tinted' to aid, with the stock-in-trade of wonderful cerulean skies, gay soldiers, gaudy females, the theatrical trees, the carriages and spanking horses of the clap-trap of competition,—but with weapons of their own honest forging, drawings of architecture by their own hands, such as in England are likewise used by such notable and honest artists as George Edmund Street, Sir Matthew Digby Wyatt, Alfred Waterhouse, and some others. What these are, some of us might be with common zeal and industry. We of the association know our capabilities pretty well. I put it to you, if you wanted to find a man to make you a good Perspective drawing of an elaborate building, and to tint it or finish it in pen-and-

\* President's Address, delivered at opening meeting of Architectural Association of Ireland, by Mr. Thomas Drew, F.R.I.B.A., R.H.A.

ink, like an artist, where would you look for him? I put it, is this a creditable state of things?

To begin with;—for the ignorance of Perspective prevalent among our students, there appears to me no manner of excuse whatever. Perspective I hold to be the simplest of accomplishments—an art the whole theory of which I maintain is capable of being acquired in one hour's learning, and practice of and dexterity in which, industry and exercise in it will surely bring. I am lost in amazement at the apathy and neglect that is widely shewn in architects' offices by pupils in acquiring an item of knowledge so essential to their being worth anything either as designers or draughtsmen.

In acquiring the use of coloring and other elaboration of artistic drawings, I admit graver difficulties are with us, but by no means insuperable to willing minds. Instruction in art of this kind is not easily had in Dublin. There are not, to the best of my belief, any teachers of water-color here who have directed their attention to the special kind of teaching we want; and, at the risk of bringing by my irreverence a house about my ears, I express my belief that, as an agency for artistic instruction of young architects the Government School of Art at the Royal Dublin Society is a thorough delusion and a snare. While, perhaps, no other instruction is open of more practical efficacy, I would not say to our pupils to avoid that Institution and the 'efficiency of the eminent masters' thereof, so frequently and appropriately mentioned in the inspiration of our newspapers. Drawing from the Antique and the Round, and any study of Figure drawing which a man can get, must be serviceable to him; but for the class of better educated youths who come to our offices, the School of Art Practical Geometry is waste of time, and an insult to their intelligence; its 'Perspective' is complicated, pedantic, and makes as much of a mountain as it can of a mole-hill of Knowledge. Its exercises in Mechanical Drawing, in Projection, and so forth, are so much sheer waste of time to the youth, who must acquire all this in a much more wholesome style in his master's office work.

Painting from Still-life is going off the practically useful track, and the delineation and shading of cones, triangles, and other models—which I believe Government especially stimulate by 'payment for results'—always appears to me a sad prostitution of time and talent. In the department of Landscape Painting, or use of water-color in such a way as would be of benefit to the architect student, the School of Art is a failure and lamentable break down.

That the objects of these schools are more diverted towards what may bear upon Manufactures, I am aware; but even in that point of view the total impotency of a 'great school of art' in this department, and its ignoring of landscape painting and study from Nature out of doors, is a discredit to the system, and, further than the system can be accountable, to the intelligence of those who guide the school, and who appear to make no attempt to alleviate the deficiency. I complain the more strongly of this defect, as it is to this Upas-tree of Art-teaching that we owe the absence of independent Professors of water-color such as we want.

However, in discussing this disadvantage, I cannot accept it from our backward young artists as an excuse. There is much measure of remedy in our own hands. By patient study of some such works on the use of water-color as Penley's, for instance; by constant attempts to use color in copying good drawings and sketching out of doors, and by constant exhibition of these efforts to as many malevolent but competent critics as possible, I believe the student may be independent of the master to a great extent. As regards pen-and-ink etching he is at no disadvantage whatever. Thanks to the inestimable boon of Photo-lithography we have all before us every day fac-similes of pen-work by the very ablest draughtsmen in the kingdom; and there are many works easily

available, such as Johnston's 'Early French,' Street's 'Brick and Marble Architecture,' and, outside architecture, many publications of clever etching, in the study of which for himself any man may improve by practice in the use of the pen.

So urgent do I feel to be this question of improved draughtsmanship, that I would entreat of you—and I wish it were possible by any words of mine to arouse some enthusiasm and energy about it among all the members present—to consider whether we are not strong enough in numbers and resources to establish some special drawing classes for ourselves, fitted to supply our special wants. It is by the establishment of such classes under the London Architectural Association that such a stimulus has been given among the younger members of that society to higher art training, with results I have referred to. I believe if we could obtain the names of a sufficient number of men who would co-operate, fix upon a sufficient scale of fees, and look about us, it would not be impossible for us to induce some competent artist to come among us, and take our classes in hand. I believe such a thing would be an invaluable benefit to ourselves, and not an unpromising opening for some artist wishing to undertake teaching.

The course which I would recommend would be some study of drawing the figure from the antique and from the life, both nude and draped. For such study as this there exists in the school of the Royal Hibernian Academy free, gratis, and for nothing, and elsewhere in Dublin, every advantage that could be desired. The more special object of our class would be the practice of drawing in water-color, of landscape, but with special direction of the skill acquired to representation of architectural subjects. The course of teaching might also embrace Perspective and drawing of Ornament applied to architecture, of different styles and schools, from the flat and the round.

For due edification of such classes, I would propose that we should form each year a small loan collection of architectural drawings—say half a dozen or a dozen—by the hands of the best known architectural artists, which would enable students to have for some time under their eyes the drawings of masters; and that in their delineation of picturesque architecture they might catch some inspiration from a Prout or a David Roberts, or in delineation of contemporary works or their own designs, they might "take wrinkles" from and aspire to emulate the handling of a drawing by a Waterhouse or a Lynn.

On another occasion I should be willing, if you will bear with me, to address you on the shortcomings and drawbacks of our position in the matter of Design and Style in the present development of architecture. Another wide field for consideration presents itself in our backwardness in the adoption of novel methods of construction and varieties of material well accepted elsewhere. Again, at the risk of bringing on our youthful heads, by touching the sensitive feelings and inordinate self-esteem of the trade societies, this association should not be wanting in the courage to grapple the great question of the backward condition of many of our building handicrafts.

It is not for want of work to be done that this association should languish. On the contrary, when I look at what must be done, if we are to keep abreast of the times—and what, I tell you, *will never be done except by the agency of such an association as this* fired with energy and public spirit—I feel somewhat appalled at its extent. I call, then, on those who have hitherto been detractors of its work or apathetic to its existence, to give some serious thought to the position of affairs, and the *raison d'être* of its existence. Honest Enthusiasm, Love of country, and Devotion to a noble art, are sparks of a divine fire which have wrought great works in the past history of our world, let a mocking and sordid age despise their faintest kindling as it likes. I tell those whose souls are not stirred by

these, on lowest grounds that of personal success in the battle of the profession, you make a grave mistake if you think you can afford to despise such institutions as ours;—and come, I say, every good man who has a hearty love for his noble art, and join those happy spirits who know not when to cease to learn, and whose student days they would should only end with a life happily spent for themselves, and usefully for their fellow-workers in their day and generation.

## ABOUT "THE HON. IRISH SOCIETY."

### THIRD ARTICLE.

UNTIL a thoroughly exhaustive Government inquiry is instituted we cannot ascertain all the evils that Ireland generally—Ulster particularly—has suffered through the existence of the "Irish Society." This inquiry cannot be exhaustive without the production of the evidence to be found in the journals of the Corporation of London, and the records of the companies which comprised, or the parts remaining which still comprise the "Irish Society." The local records of Derry and Coleraine will supply further evidence. Indeed, the evidence alone supplied by the reports, records, and other documents of the "Irish Society" would be sufficient in itself to condemn its action and to warrant instant reform. Notwithstanding James I.'s rapacity, he exhibited extraordinary shortsightedness when he handed over to the London Companies and their representatives the "Irish Society," the immense properties which they have so long held. It is to be noticed that for upwards of a century and a-half, several of the companies have been selling their interests in their Irish estates for valuable considerations, and even as we write the Stationers' Company is effecting a transfer agreeable to themselves as to price. As we look upon these properties as trusts, we hope that when an inquiry is instituted, a satisfactory account will be forthcoming as to the disposal of the funds, and in what manner they have been applied. We are of opinion that some Governmental stop should be put to any more sales of these estates until the inquiry desired was held, and a definite scheme propounded for their management. After that, it would not much matter whether the whole of the companies parted with their Irish estates at their value and the "Irish Society," as far as Ireland was concerned, ceased to exist. Some security is needed at present that the whole of the money acquired by the sale of any estate is lodged to the credit of the trust, and not frittered away for the benefit of individuals. As far back as 1780 the Goldsmiths' Company disposed of their manor of Goldsmiths' Hall, to the Earl of Shelburne, for £14,100. In 1786, the Vintners' sold their portion of Ballaghey to the noted Mr. Connolly, of Castletown, for £15,000. The very rich Company of the Merchant Taylors, and the Haberdashers, sold their properties to the Beresfords, the Richardsons, and the Alexanders for large sums. Immense sums were also obtained by the Skinners and Ironmongers, who, however, kept the fee in their own hands. The latter Company, in 1767, were paid a fine of £21,000 for a lease of their estate for three lives or sixty-one years, by an Indian nabob who never had the pleasure of seeing it with his eyes; and the former Company—the Skinners—succeeded in obtaining a far larger sum by obtaining a fine of £25,000 on a terminable lease from Mr. Ogilvie, a linen factor, of Dublin. This was a handsome remuneration for the companies for their original investments of £3,383 6s. 8d. The companies of course were absentees, and continue so; they look upon these estates as absolutely their own, and concluded that they might do as they pleased; but property has its duties as well as its rights. Absenteeism seldom or ever produced good landlords, though the "Irish Society" has taken credit to itself for letting its lands upon such leases, and at such easy rents, that it became the interest of the



tenants to improve them; but if they are open to reason, they must have been undeceived long since on this head. Long since it has been shown that no lands in that part of the country where the estates of the "Irish Society" exist, were more highly rented, and no tenants more disposed to speak unfavourably of landlords.

In a narrative of an excursion written by a former secretary of the "Irish Society" as far back as 1803, he states:—"Having arrived at Kilrea, a market town, and a portion of the Mercers' Company's estates, held by a Mr. Stewart under them, and being struck with the poverty of the place, he communicated with the master of the inn as to the cause, who observed 'that it could not be otherwise in a part of the country where they never saw the face of the owner of the soil, or even his under-tenant.'" Mr. Secretary Slade goes on to say:—"This is a grievance greatly felt in the north of Ireland, but more particularly in those parts which belong to the City Companies; and he became greatly impressed with a greater degree of indulgence for poverty, ignorance, and laziness of the lower order of the people who toil for a miserable subsistence, and see the fruits of their labour carried off from time to time by an agent of their landlord, to be spent in a foreign country; while the same description of people in England are cheered by a hospitable reception in the hall of their landlord when they come to pay their rent, derive benefit from his expenditure and example, and, in case of petty disputes, find an honest magistrate, a kind landlord, and a well-informed neighbour to reconcile their differences, and prevent little misunderstandings from growing into rancour and the spirit of revenge."

What more could be said against the evils of absenteeism at the present day? Secretary Slade, however, did not tell the whole truth; and what he did tell, he glossed it over. He attributed laziness, while in the same breath he acknowledges that the poor people work hard, and see the fruits of their toil carried off by the agents of absentee landlords. It is an indisputable fact that the "Irish Society" for long years did its utmost to extirpate the Irish population on its Plantation. Several of the English companies sent over at different periods English artisans to execute work or to settle down, and the children of Christ Church Hospital and other London charitable institutions were drafted over as servants and apprentices, the inhabitants being prevented from taking Irish apprentices. To whatever extent the Plantation succeeded, it has, however, been a failure in respect to extinguishing the native inhabitants, as the population long since has shown.

A generation has nearly passed since a mayor of Londonderry suggested the sequestration of the possessions of the "Irish Society" in Ulster. He pointed that it was done so before by "Charles the Martyr." He went in for dividing the estates into fee-farms among the people, giving, of course, the London shopkeepers what their predecessors paid for the estates, and the value of their permanent improvements. These are some of his words:—"But let me be understood to speak only of an absentee corporation of English traders—men who confer on our country no protection by their power, and no glory by their station. I do not speak of those descendants of the original planters, who, born on our soil, have a title which no human being can question or doubt, and amongst whom have been found some of our most distinguished patriots, orators, and soldiers. But the incongruity of a set of London tradesmen squandering our revenues upon their city or their appetites is too great, and the injustice too monstrous, to be endured by any nation of the most spiritless slaves. Do the Irish people deserve the name?"

The Corporation of Derry followed up these charges, and declared years ago that the "Irish Society" was incapable, from its constitution, of rendering the country any

permanent benefit; that by its own published accounts it admits having received, for the nine years ending March, 1833, a sum of £77,000 from its estates in Ireland, while not more than £8,000 was expended in it, which was stated to be appropriated to schools and public charities, while not a shilling was expended on improving the farm-offices or the houses of the tenants on the estates. To these grave charges the "Irish Society" was forced to reply, and, as a matter of justice, we will give the gist of their answer:—"That whether the colonisation of the County Derry from the City of London and the ramifications of the plan prescribed by the charter were theoretically wise, is not to be argued; it is obvious that it has been practically beneficial; and the present state of that county, which is the most peaceful and orderly in its conduct, and it is an example to be pointed out to all the other parts of Ireland, plainly shews the benefits which have resulted from it. The present unfortunate situation of the Corporation of Derry is certainly an exception, but it has been clearly shown not to have been produced by the society, but by its own profuse expenditure and gross misapplication of the funds confided to its management. The nine years' accounts referred to, instead of £8,000, show upwards of £35,000 have been expended in Ireland by the Society, and their lands are let upon such easy terms and upon such leases as to make it the interest of the tenants to build." We need not tell the people of Ulster, whom this matter specially concerns, what is the nature of the "Irish Society's" lease.

In all the acts passed, even during the present reign, having relation to the Corporation, the port and harbour of Derry, the interest of the "Irish Society" is secured. It would appear that the common weal was less thought of in the framing of these acts than the interest of the London "Irish Society." The society puts forth many claims respecting jurisdiction over the lough and adjacent coasts, fisheries, &c. Some of these are secured by charter, but other powers, though claimed on the part of the society, are virtually exercised by local boards or bodies. The society has reaped many rich harvests by its salmon fisheries, for it has claimed and exercised the exclusive right of fishing in the Foyle, as far as Lifford, a distance of about thirteen miles up the river. Then there are the fisheries of the Bann more productive still. Some years ago this fishery averaged 180 tons annually, the salmon being principally shipped to London, Liverpool, and Glasgow.

The coast fishery appears to be altogether neglected, although when the plantation was first formed it appears to have given employment to 160 sail of Irish and a number of Dutch vessels. These advantages were described to the London Corporation by James. We trust that these resources, before many years pass over, will be fully utilised by our countrymen.

In the original grant from James all the fishings on the Bann, to Lough Neagh, were conveyed to the Corporation of London with those on the Foyle, and it is a very remarkable fact that the "Irish Society," three years afterwards, was offered by those in possession £1,000 per annum for them. Considering the value of money at that time, this was an immense sum, and proves conclusively the then prolific yield of these fisheries. A large salmon at that time could be bought in Coleraine at less than the price that is now paid for one pound of it. These fisheries, in 1691, were let to Lord Massereene, for two years, at £1,050 per annum, and about the year 1708 they were let as high as £1,600 per annum. The "Irish Society" had these fisheries in their own hands in 1722, and disposed of all their salmon in London at £14 11s. per ton. In 1721, the produce was 120 tons, but in 1723, it fell to 97 tons, which was sold in London at £15 per ton, but we read that the cost attending that portion taken in Lough Foyle exceeded the proceeds. The "Irish Society,"

finding that the management was not so profitable in their own hands, let them once more, Alderman Jackson taking them in 1729, for twenty-one years, at £1,200 per annum. They came back, however, into the hands of the society again in 1735, but the London market did not prove so profitable as before. The society then bethought of opening up some new markets, so they cured and packed the salmon in ice, and shipped it to Venice and Leghorn, but it only sold for £1,028. The next year the society despatched another cargo to the same markets, but the vessel was lost in the Adriatic. A portion of the fish in bad condition was saved, and the society was no great loser, as they were insured to the extent of £1,000. Henry Hamilton, in 1755, had the fisheries at £910, and he and the tenant that preceded him constructed traps upon the rocks called the salmon leap. These, in 1771, were objected to by the Marquis of Donegal, who had the right of fishing in the Bann from the west side of the leap to Lough Neagh. The Marquis instituted a suit at law to compel their removal, which continued thirty years, the plaintiff and defendant dying before its settlement, leaving the dispute still in litigation. Early in the present century—about 1811—these fisheries were let on lease, to expire in 1847, to Sir G. F. Hill, for £1,250 per annum, and subsequently to Messrs. Allan and Gordon, for £1,200 a-year. We include these few particulars about these fisheries from local and other sources to show what a fine property the "Irish Society" has had in its possession, apart from its landed estates.

We find, without making this article too lengthy, we would be unable to say what we intended in conclusion about the "Irish Society." We will therefore postpone to another article what may be needful to say of the anomalous position of the society, and in view of the reform which all honest and independent citizens would desire to see carried out for the credit of both countries.

#### IRISH SLATES AND MARBLES.

In the current number of the *Ironmonger* we find the following, from the pen of its Irish correspondent:—"The products of our slate and marble quarries, we are glad to learn, are becoming better known, and made more use of by our opposite neighbours, and lately we have competed successfully in the market with those on the English side of the channel. Our marbles are well adapted for making rich columns, &c., in architectural work; they also make handsome mantelpieces, either worked separately or made up in combination with foreign marble. Being close at hand, the price is rendered low, allowing of chimneypieces being turned out at a moderate figure, and rendering them saleable stock with any ironmonger. We are glad to be able to report no slackness of work in this direction; indeed, it is satisfactory to know there is a growing demand for such goods, and they only need to be more widely known to be appreciated. Manufacturers of mantelpieces, &c., would find it more to their advantage in not altogether ignoring Irish stone when purchasing."

[It may not be out of place to notice, in connection with the above, that Messrs. Sibthorpe and Son, Great Brunswick-street, have done much towards the development of our marble quarries. Their energy has, we believe, been well rewarded. Few buildings of any note are erected at present in which their marbles are not largely used. We may on another occasion mention some of these on both sides of the channel. Specimens of the different varieties of Irish marbles may be seen at the entrance hall of the Royal College of Science, St. Stephen's-green, the walls of which are lined with them.—ED. I. B.]

## UNKNOWN DUBLIN.

BY THE "OLDEST INHABITANT."

Edited by Mark Philip O'Flanagan, T.C.D.

NORMAN KEYS—fourth visit.

THE "Oldest Inhabitant" takes up the thread of his story:—

"At 8 on the Lower Key were the old Insolvent Court offices, previous to their removal to the Four Courts. The once well-known Commissioners O'Ferrall and Henry Grattan Curran sat here for several years; they were known by the name of 'The Liberators,' from the facility they afforded to debtors to pass through the court. At the rear entrance to this house is the old spacious court, with an entrance from Sand-street. Previously to having been used for an Insolvent Court, it was used as a Presbyterian meeting-house, where the united congregations of Wood-street and Cook-street met. Attached to this meeting-house was a poor-school, founded by the Misses Plunket, whose father was for many years a minister of the meeting. The building is a plain two-storey brick one, without any ornamentation. The congregation that used to assemble here many years ago was considered the most respectable in the city. Formerly adjoining this meeting-house there was a library of divinity, where the congregation were allowed to read. In connection with this old meeting-house there were many distinguished theological and controversial writers, among whom were: Matten, Rule, Charnock, and Leland, the author of 'A View of the Deistical Writers of the Last and Present Century.' Fifty years ago and upwards there were four Presbyterian meeting-houses in this city, inclusive of the one I am speaking of; the others were situated in Eustace-street, Mary's-abbey, and Usher's-quay. The old Usher's-quay or Meeting-house-yard congregation removed to the new church built for them in 1845 on the Upper Key. The architect of this favourable specimen of Gothic architecture was Mr. Gribbon, a still living practitioner. The foundation was from a bequest of Mrs. Magee.

"There lived for several years at 2 on the Lower Walk, next door to the Insolvent Court Office, an umbrella maker rather remarkable in appearance though harmless in person notwithstanding his size. The name of this old trader was George Boles, but he was known behind his back by the cognomen of 'Pudgy.' The house was known for some time as No. 1, but for some time back it has been converted into solicitors' offices. George Boles was an old trader, and had a good connection. Before settling down here he lived at 5 Trinity-street, where he was in business as far back as 1818 and previous.

"At 4 resided for many years John Chapman, a wholesale lace warehouse. This shop did good business until the advent of the monster drapery establishments. At 5 lived Robert Morrison, afterwards Gray and Morrison, wholesale chip, straw, and lace warehouse. The business is still carried on by the present proprietor. At 6 traded for several years Reuben Hughes and Son, paper manufacturers. The house did a good trade for some years, and the family lived in good style. At 7 was once opened a 'monster house,' as these large drapery establishments are termed. The firm went by the name of Harvie, Harrower, and Auld, and was the outcome of a house on the opposite side of the river. Harvie cut his throat in this house. This house was afterwards occupied by Henry Peat, a Scotchman, as a paper warehouse. After living here for some years and making a handsome competence, Mr. Peat retired from business.

"At 8 another old manufacturer in the paper trade lived for several years. John M'Donnell, wholesale paper maker, opened here early in the present century. The firm was continued by his sons, John and Thomas. Old John M'Donnell was one of the old school of citizen merchants and traders who

kept up to old customs. He appeared to the last in public in top boots, and was known by the harmless soubriquet of 'Old Boots.' The name is long connected with the paper trade of this city. In 1786 John M'Donnell, paper maker, lived at 81 Cook-street, and Michael M'Donnell, in the same trade, lived at 19 in the same street. In 1796 Darby M'Donnell, paper maker, lived at 20 Cook-street. In 1818 Christopher M'Donnell, paper manufacturer, lived at 9 Merchants'-quay, and John M'Donnell at 24 Cook-street; William M'Donnell, paper, bonnet, and card-paper manufacturer, lived at 22 Usher's-quay. In 1830, and subsequently, John M'Donnell, in the same trade, continued to reside at 7 Merchants'-quay, and Christopher M'Donnell and Son, at 9 on the same quay. Michael M'Donnell, jun., in the same trade, lived then at 16 William-street. The M'Donnell family, it may be seen, are long and honourably known in connection with the paper manufacture trade of this city.

"At 10, now occupied by Michael Crooke, one of our celebrated auctioneers, who has passed many a property under his hammer, lived Thomas Ferrall, in the same business. He, also, transferred many a valuable property that was long a-going from the hands of the original owners, but is now gone for ever. In this house lived for some time an attorney named Peck.

"Wright and Stanley, previously Richard and Robert Wright, hat manufacturers, lived at 11. For nearly a whole generation this house has been known as Wright and Stanley's. A good trade was done here formerly.

"Edward Butler and Co., merchants, lived for several years at 12. He was established here previous to 1818. The house was a long low three-storey one, and was divided into two, and known afterwards as 12 and 13. As one house it looked a substantial structure, with a front of dark red brick, massive iron railing, and hall-door in the centre. The Butler family, when residing in this house, lived in what is generally called 'grand style.'

"I mentioned on our former visit about 13, occupied for several years by John Franklin, paper stainer; 14, formerly 13, was, as I have already stated, the second shop opened on this Walk. At 17, formerly 16, lived the noted John Cumming, publisher, of whose trade and surroundings I will tell something in detail hereafter. At 19, formerly 17, various traders lived in the course of a few years, none of whom seem to have been successful. Of 20, formerly 18, I have told you about its occupier in our last visit.

"At 21 lived for several years Robert Costigan, watch and clock maker. He previously resided, I believe, at 81 College-green. Mr. Costigan died at a very advanced age last year. He had the reputation of being a rich man and a miser, but he died an old bachelor, and rather poor than rich. The house where the watchmaker resided so long has been recently wiggled down, but the old elliptic-headed shop window-sash remains still the same as it did thirty years since, with its slide-up shutters and handles. Poor old Bob was, indeed, an 'old inhabitant,' but many of his clocks and watches survive him, and, unlike him, have not ticked their last.

"At 26, formerly 23½, was the noted shop of the once remarkable and eccentric William Sheridan, ink manufacturer. He was originally, I believe, a letter-carrier, and accounted the most active man on his walk. For several years he exhibited his day-book in his shop window, and indeed it was a curiosity. It was his practice to ask his customers to write their orders in it themselves; and if this book could be had now, it would fetch a good price, as it contained the autographs of many noted professional, literary, public, and business men of the last half century. In his shop window was also exhibited some lines of poetry of his own composition, written, if I remember aright, either

on linen or paper, framed and glazed. One of the verses ran thus—

'Sheridan's true Black Ink fades not away,  
Judges, lawyers, merchants, doctors say,  
Who leave their orders in his book each day.  
Twenty three and a-half Lower Norman Key.'

In passing by his shop from the courts of law, O'Connell used to stop at the eccentric ink-maker's shop door and call out in a loud tone—'Sheridan, send me home a gallon of your Irish ink!' Sheridan was a water-colour manufacturer or seller, as well as a dealer in ink. He is a dead several years, and he left, I believe, no male representatives. Often I passed his little shop and stood to gaze in, like others, at the sights to be seen in his window. It is between forty and fifty years since William Sheridan first opened here.

"At 27, formerly 24, the late John Star opened in business as a paper stainer and painter in 1821. He previously started in business, I believe, in Meath-street or Thomas-street. This 27 was the third shop that opened on this riverine walk. The house is a well-built and finished specimen of the domestic architecture of its day, and is considered still by many that, as a whole, its fittings and finishings within and without can bear favourable comparison with more pretentious designs. This house and others on the Key exhibit good joinery and bricklaying work—workmanship that was not scamped, like that to be seen in hundreds of our modern suburban dwellings, which were 'built to sell.' The old business of the house is carried on by his son and successor, George B. Star. The respected widow of the late John Star, and mother of George R. Star, died only last year, at an advanced age. She was a woman of a very retentive memory, and her recollections were many of the old residents, merchants, traders, and others, who lived on both Keys. She lived for the space of 54 years in the one house. What a world of changes have not taken place during that time! The building trades of this city during the last half-century, one and all, have had changes, some good and others the reverse—changes indeed which few could have anticipated!

"A great revolution has taken place in the manufacture of wall-paper hangings since John Star commenced business on the Key in 1821. What was first rather a primitive process of paper staining is now a scientific one; chemistry and machinery are now very fully utilised in the colouring and printing processes, and the old block-stamping process bears nearly the same relation to the modern process as the old weaver's loom does to the present steam-driven machine. Wall hangings may now be had of nearly endless patterns, in imitation of foliage, fruits, fancy woods, marbles, and statuary, but many of our most beautiful patterns are manufactured in colours that are poisonous. What a host of executive artists of special talent were formerly employed to do by their hands, is now done without brains or hands, for one designer can supply food for hundreds of machines. I am almost tempted, sir, to dilate upon the old paper stainers and their processes, but I must pass on.

"At 28, formerly 25, lived William Sharkey, printer, account book manufacturer, and stationer. His brother Robert, familiarly known as Bob Sharkey, was box usher at the Theatre Royal for several years, and is still remembered by many old citizen playgoers of forty or forty-five years ago. S. Jamar, cabinet-maker and upholsterer, carried on business in this house for some years. He was stated to have been a French refugee of the Revolution of 1830, but I find that he was located at 18 Bachelor's-walk in 1830, so that he must have arrived some time previous, or his name could not have appeared in the directory of the above year. He bore the reputation of being a splendid cabinet manufacturer, and his work still, whenever identified, brings good prices in the trade.

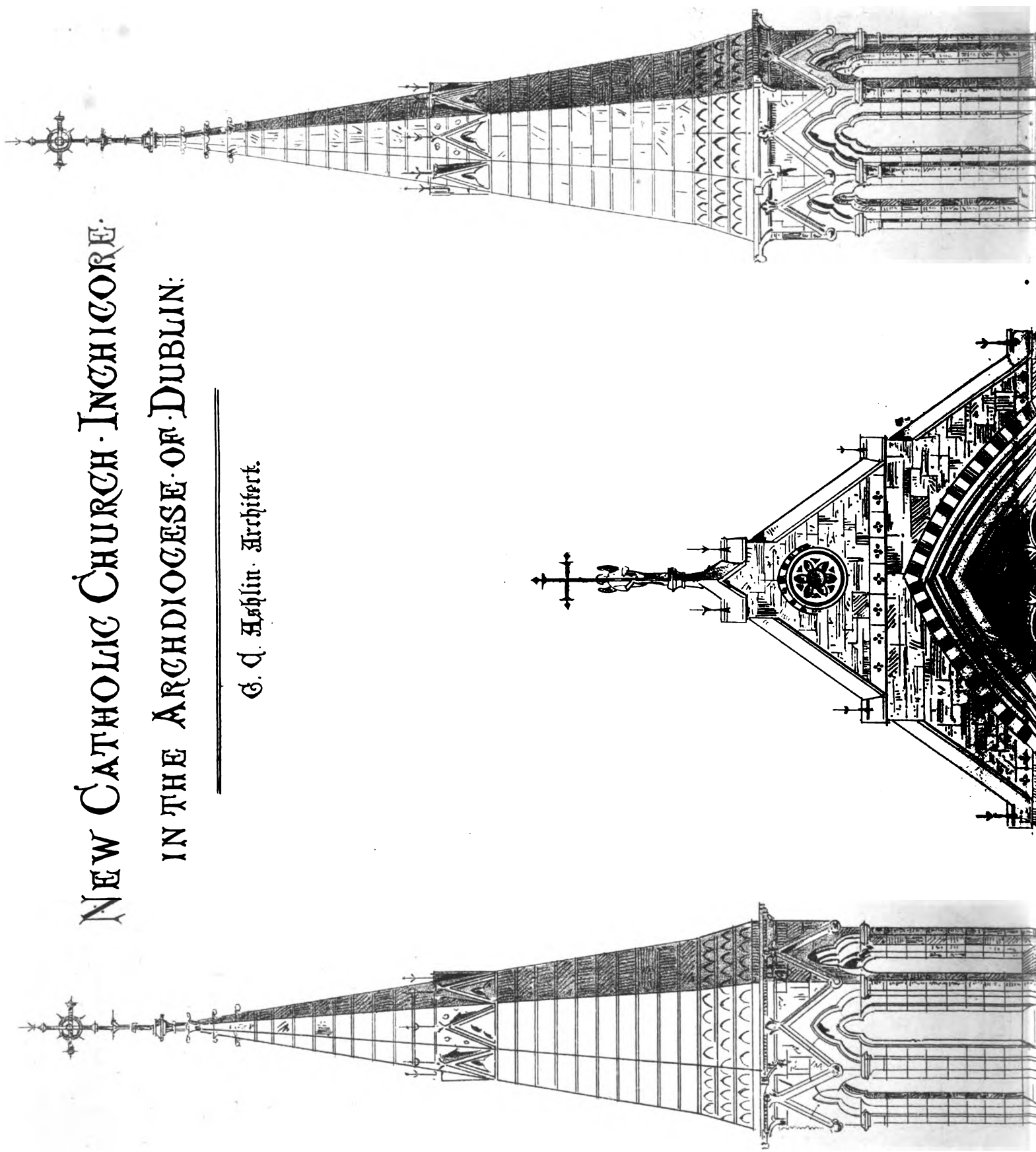
"At 29, formerly 26, lived John Shaw the

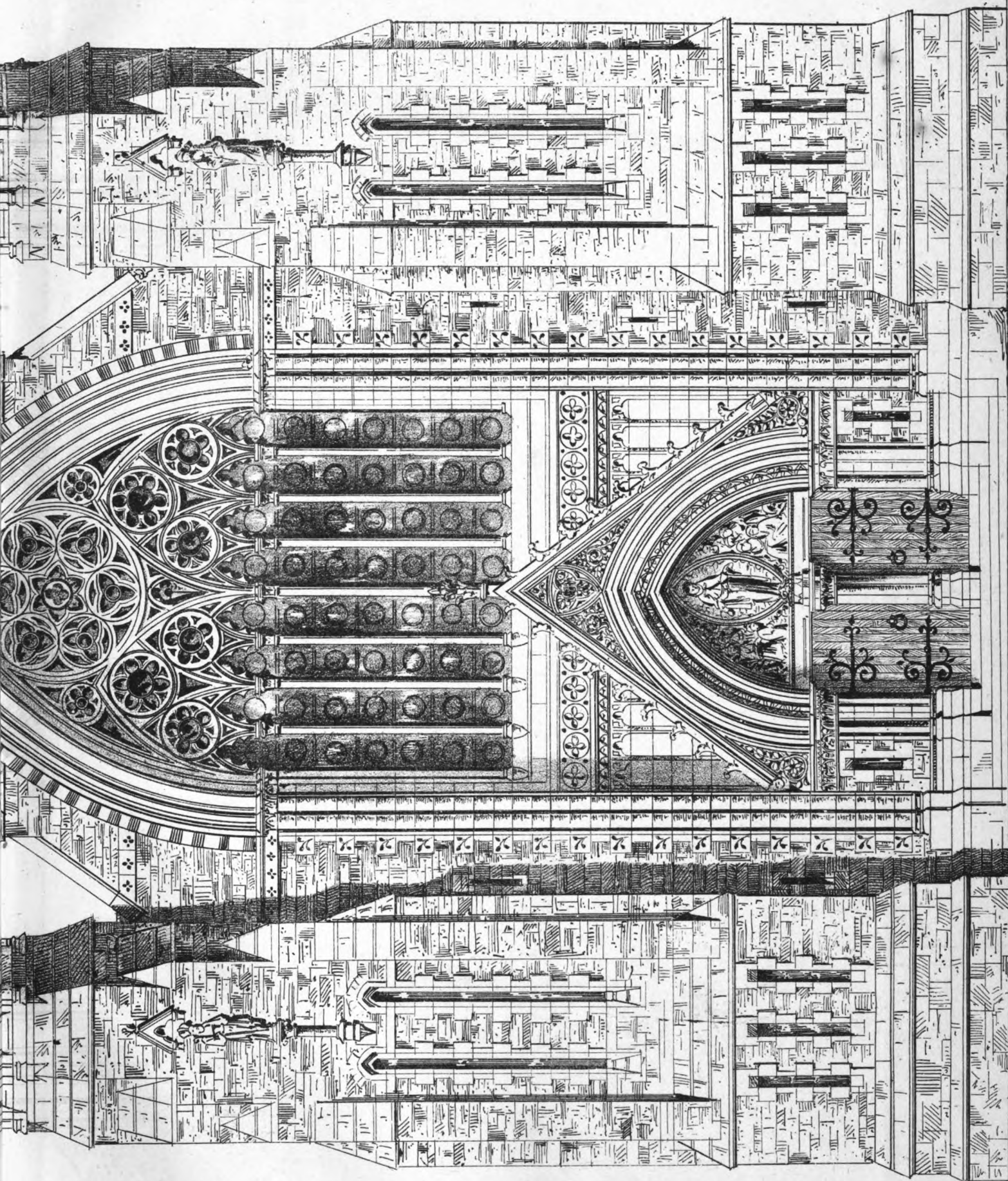




NEW CATHOLIC CHURCH · INCHICORE ·  
IN THE ARCHDIOCESE OF DUBLIN:

G. D. HASHLIN · ARCHITECT.





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celebrated 'insolvent attorney.' His brother as William Shaw, of Bachelor's-walk, and is nephew Dr. Shaw, of Trinity College. In our visit, sir, to other localities, months ago, I gave you some more particulars about the members of this family.

"At 80, formerly 27, lived Richard Purdy, merchant, and secretary to the Mining Company of Ireland. Mr. Purdy was an old resident, and his location here dates back early in the present century. I believe he was the founder of the Mining Company, the motto of which was 'Industry, Economy and Perseverance.' The company became very prosperous under Richard Purdy's management. At 81, formerly 28, lived Peter Callaghan, corn and flour factor. He was one of the old and highly-respected classes of merchants whose word was their bond. He prospered well. His youngest son is the present distinguished president of St. Vincent's College, Castleknock. His brother was Ignatius Callaghan, also flour merchant, who carried on business for some years at 20 Fleet-street, and whose name is identified with much of the success of the Hibernian Bank in its earlier days. He was also for some time the governor of the bank.

"Passing over two or three houses, concerning which nothing remarkable occurs to my mind at present, I come to 35, formerly 32. Here John Wilson, slater and slate merchant, lived as far back as 1818, and then John and William Wilson. The latter was stated to be the first of his trade in Dublin for executing permanent work. He made a fortune here, and retired years ago. It is said of him that although he kept a carriage for his wife and daughters he was never known to use it himself. At 37, formerly 34, resided R. W. Scallan, an eminent attorney. Before 1820 he resided at 7 Bachelor's-walk, and in 1830, and for some years afterwards, at the first-named house. R. W. Scallan was the grandfather of John Lewis Scallan, solicitor of the present day. Mr. Scallan had a brother who invariably wore a cloak in all weathers either on his arm or on his back. He was a man possessed of a most retentive memory, and could repeat, without missing a word, an entire speech of Henry Grattan. He was a devoted and ardent admirer of that Irish patriot, and so often did he repeat that great man's speeches that he was known himself by the name of 'Henry Grattan.'

"Recollections grow apace as I write, and I feel, sir, it is as well I should conclude at this point. On our next visit I will take up the thread of my story, and carry it on towards a conclusion as far as this locality is concerned."

Agreeing to the resolution of our friend, we turned homewards with the "Oldest Inhabitant."

#### THE O'CONNELL MONUMENT.

At the last meeting of the committee, after considerable discussion and difference of opinion, the following resolution was proposed and carried:—

"That the secretary be requested to inform Mr. Teniswood that the O'Connell Monument Committee and the subscribers thereto, at a meeting summoned to consider which of the two statuettes, lately submitted by Mr. Teniswood, should be adopted, have resolved, as reported by the committee of design, that the cloak is objectionable, and that in their opinion the undraped figure is preferable, as being more characteristic of O'Connell's energy, boldness, and determination; and that this meeting selects the undraped figure to be followed as the model of the statue to crown the monument. In making this communication this meeting desires it to be understood that no additional expense is to be incurred on account of this arrangement, and they earnestly desire that the work will proceed with expedition."

An amendment was moved by the Rev. Mr. O'Hanlon to the effect that the design of Mr. Foley be adopted in its entirety, and that Mr. Teniswood be instructed to proceed with the work according to the original con-

tract, but this was afterwards withdrawn. Sir Dominic Corrigan, Bart., the chairman, remarked—"As to the danger of a statue unsupported by a cloak or any other mechanical contrivance coming down, he might mention the case of the Vendome Column, Paris, with the figure of Napoleon on it, before the Communists destroyed it; Nelson's Column, in Dublin; and the Duke of York's, in Waterloo-place, London; and there had never been any fear expressed about their tumbling down." We fear that a considerable time will yet elapse before the monument in Sackville-street is completed. We cannot say that the committee has exhibited great activity or prudence in the conduct of its proceedings from time to time. They certainly cannot be complimented on the progress they have made in carrying their work to a completion.

#### CIVIC LYRICS.—No. XXVIII.

##### THE INJUNCTION.

"Restrain them!"—so the cry went forth  
From Harold's Cross to Finlias;  
"Tis more than both your lives are worth,  
Bold M'Evoy and Inglis."  
The public looked on, quite amazed,  
Nor felt the least compunction  
To see the Drainage Bill appraised  
By process of Injunction!

The half a million dwindles down,  
And hopes are growing dimmer,  
For briefless men who walk the town  
And counsel hack and trimmer.  
And, worse than all, our Civic Chief,  
Despite his flattering unction,  
Was forced to hear the words—"Stop Thief,"  
Translated, meant Injunction!

The "whole house" met, the "half house" sat,  
And fourteen proud defendants  
Went to the Courts to be laughed at  
And sworn like mere attendants.  
Oh! M'Evoy, of hardened soul,  
They called you wasp and stingless;  
But no such wasps e'er stung, and stole  
A march like you and Inglis!

CIVIC.

#### THE INJUNCTION— RE THE MAIN DRAINAGE SCHEME.

THE decision of the Vice-Chancellor on Friday last in granting an injunction to restrain the Corporation as a body from taking a single step to promote their pet Main Drainage scheme at the cost of the rates, is a matter on which the citizens may well be congratulated. Thrice amended, if not more often, the scheme of the Corporation was perfectly preposterous, ill-digested, and out of all proportion with the financial circumstances of the city. If carried out in its present form, the evils attending its prosecution would be far-reaching and many; but particularly as regards the city, the carrying out of the scheme would place upon the ratepayers a burden of which they would not rid themselves for years. How the present rates and taxes press down the trading and commercial life of the city few need be told; but with the additional impost entailed by the prosecution of a gigantic and jobbing scheme the case of the majority of the ratepayers would be truly deplorable.

The activity and energy displayed by the Citizens' Committee are worthy of all praise; nor should the special services rendered by Messrs. M'Evoy and Inglis be forgotten. The first-named gentleman has worked honourably and long in the cause of the citizens, never relaxing his efforts, and at last he has the satisfaction of seeing his labours bearing fruit. The citizens of Dublin, we have no hesitation in saying, owe Mr. M'Evoy a debt of gratitude. Our own part in the opposition to the Main Drainage

scheme has been a long, consistent, and honest journalistic one. We never opposed for party or out of factious purposes; and our opinions were formed long since, from a careful examination of the Drainage scheme and its whole surroundings. It is needless to say we are in favour of a Main Drainage for Dublin, but not the ill-advised and ill-devised scheme of the Corporation. The Vice-Chancellor told the Corporation plainly that they acted illegally, and that an injunction should issue. Therefore, the bill of 1871, with its provisions enabling them to borrow £350,000, cannot be manufactured into a bill for raising £500,000.

There is an end for the next twelve months to come to the new act of the Corporation, and we hope also to the salaries and expenses belonging to the auxiliary Drainage staff, whose occupation is now gone! The Corporation, perforce, are now—in face of the injunction, and for other reasons—obliged by resolution to suspend all action in reference to their bill, so we hope the independent members of that body will see that all expenses which were contingent on the prosecution of the scheme in the shape of appointments and salaries are at once put a stop to also.

Let individual members of the Corporation, if they like, promote a Main Drainage bill, and pay the carriage out of their own pockets; but it was time that a curb should be put to the doings of a mischievous section, who led the council almost by the nose, to the great cost of the city. The fourteen special defendants in the suit obtain their costs; but, being members of the Corporation, and included in that body, they have to pay the relators' costs.

What grim irony is there not in this legal decision of the Vice-Chancellor! The fourteen defendants are not restrained by an injunction; it is only the Corporation of which they are members; but, as corporators, the fourteen individuals are restrained in their public capacity, while otherwise free as private individuals to seek bills at their own cost. They will not embrace, we may be sure, the latter alternative. If Dublin was depending on a Main Drainage to be carried out at the cost of these fourteen defendants, she might wait till the period of the Greek Kalends!

The city is to be congratulated, for the present at least, that the big ill-digested Main Drainage scheme is knocked on the head. In view, however, of future action—which will undoubtedly be attempted by the Corporation,—we advise that there should be a strengthening of the Citizens' Committee, and that that organisation should remain intact for some time longer to keep watch and ward over the ratepayers' interests.

#### ARCHITECTURE AND IRISH ARCHITECTS.

We print elsewhere the President's address at the opening meeting of the Architectural Association of Ireland. There is much to commend in the address, for the honest picture it draws of shortcomings in our midst, and the good counsel it gives to the young aspirants to the profession in Ireland. We may not concur in every sentence, but we can bear cheerful evidence to the value of such outspoken words as those addressed by Mr. Drew to his younger brethren, when drawing a comparison between aspects and prospects of the profession in both countries. Architects in Ireland often wonder at the apathy they have to encounter, and the indifference manifested in their regard by the general public; but much of what architects complain is attributable to their own lack of spirit and brotherly feeling. We will not now traverse the subjects cognate that are touched upon in the President's address, but we recommend its perusal and earnest consideration to those whom it specially concerns. Hereafter, at an opportune moment, we may pass under review the principal topics discussed in it.

PAPERS READ BEFORE THE  
INSTITUTION OF CIVIL ENGINEERS,  
LONDON.

THE MANORA BREAKWATER, KURRACHEE.

At the first meeting of the session, held on the 9th ult., Mr. Thomas E. Harrison, the President, in the chair, the paper read was on "The Manora Breakwater, Kurrachee," by Mr. William Henry Price, C.E.

It was stated that the Manora Breakwater was the most important feature of the Kurrachee Harbour Works, which were commenced in 1860, from the designs of the late Mr. James Walker, assisted by Mr. William Parkes. Besides the breakwater the chief works were—in the lower harbour—a stone groyne 8,900 ft. long, dredging and removal of rock, and—in the upper harbour—an increase of one-fourth to the area of the backwater, involving a new tidal channel  $2\frac{1}{2}$  miles long, crossed by a screw-pile bridge 1,200 ft. long, and an embankment 2,780 ft. long, to close the old channel, also of a jetty 1,400 ft. long with quays. All these works were now nearly completed, and had already produced great benefit, the entrance having been made direct instead of circuitous, deepened 6 ft. and sheltered, the anchorage space enlarged, and the internal accommodation improved. The trade of the port was  $8\frac{1}{2}$  millions sterling per annum, and railway communication with the Punjab would further develop it. About £450,000 had been expended on the whole of the harbour improvements.

The breakwater projected from Manora Point for a length of 1,503 ft. into a depth of 5 fathoms of water, in order to shelter the entrance from the south-west monsoon seas, and to prevent their tearing up sand from the bottom and depositing it as a bar. The characteristics of the sea, wind, and tides, as bearing on the design, were alluded to, and it was stated that the bottom was irregular near the shore. The structure consisted of a base of rubble stone levelled off generally to 15 ft. under low water, and on this base concrete blocks, each weighing 27 tons, were set on edge, leaning back at a slope of 8 in. to 1 ft., and without bond, two blocks forming the width and three the height, and together making a square of 24 ft. in cross sections, the top being about the level of high water. The rubble base was deposited from native boats, and was levelled for the superstructure by helmet divers. Two European mason divers were employed, and six native divers trained on the work, the latter chiefly for shifting the rubble. No accident occurred, and the party generally did not suffer in health. After mentioning circumstances which determined the use of concrete blocks and of Portland cement, particulars were given of the composition of a 27-ton block, the materials being cement, river sand, shingle, and quarry lumps, with salt water. The ratio of the bulk of the cement to that of the finished block was nearly 1-11th. About 3,500 tons of cement were used, costing from £8 17s. to £4 10s. per ton. The mixing station, block ground, and moulding of the nineteen hundred and seventy-two blocks, including three hundred and twenty-five of special smaller sizes, were then described; and it was remarked that the 'Messent' mixers had been found very efficient. The blocks were sometimes used one month after being made, and once, as an experiment, a 27-ton block was safely lifted in seven days. When the work was fairly established the blocks cost for current expenses 15s. per cubic yard, though the average total rate was raised beyond this by extra expenses in the earlier stages.

The blocks were lifted on to the trucks by a steam hydraulic travelling crane of 50 ft. span; each truck carried one block, and was taken separately by a tank locomotive to the breakwater. The blocks were set by a steam travelling crane, called the "Titan," which ran on rails laid on the finished work, and overhung the end, so as to carry the blocks of three tiers in advance to their places, thus dispensing with staging. The framing of

this crane supported a traveller and crab, worked by an 8 H. P. engine on the top, which also drove the travelling gear of the entire machine. The cost of the Titan, delivered and erected at Kurrachee, was £2,879. The rate of setting was limited by the progress of the foundation and by the supply of blocks, but during the last season ten 27-ton blocks were set daily on an average, while on one occasion six blocks were laid in one hour and forty minutes without special pressure.

The base was commenced on the 17th of March, 1869; and later in that year the shore end "stump," 45 ft. long, to make a starting place for the Titan, with other preparatory works, was completed, after some unavoidable delays, and the first block was set on the 1st of November, 1870. The delays of the foundation were specially felt in the first season's work, but a length of 225 ft. was built in four months, taking the breakwater out to 270 ft. from the shore. During the second season, 1871-72, after a few days spent in repair of monsoon damages, a length of 523 ft. was built in about four months, making a total of 793 ft. During the third season, after the repair of monsoon damages, a length of 710 ft. was built, completing the breakwater on the 22nd of February, 1873, to its full length of 1,503 ft., which had thus been barely twelve months in actual building.

The action and effect of the monsoon sea, and the repair of damages were then detailed. In 1871 the centre joint opened here and there, and one block was washed over from the top course on the harbour side. Slight damage also occurred to the shore end in the sea angle. The nature of the settlement was described, also a curious rocking action, and the closing up of the cross joints under the action of the sea. The repairs of the damage, in the first season, cost £185. During the second monsoon, 1872, twenty-five blocks were washed out from the top course on the harbour side, eighteen of these blocks being in one length of 86 ft. The damage was again traceable to inequality of settlement. The sea side did not suffer, nor did the shore end, though both showed evidence of the force of the sea. The damage was repaired in a few days at a cost of £512. The monsoon of 1873, the first after the completion of the breakwater, did trifling damage, and was confined to the shore half length, still pointing clearly to weakness of foundation. The repairs cost £199. In the monsoon of 1874, the outer end and "scar," which had not then been in any way specially secured, lost five blocks during unusual weather, though no other part of the outer half length suffered, but the shoreward half opened here and there. The repairs of this season cost £418, and included the re-erection of an iron beacon on the outer end. The nature and extent of the subsidence (which in some parts amounted to 3 ft., but without dislocation) were then noticed, and the action of a mollusk, the "Pholas," on the concrete blocks, also the effects of the sea on the rubble base, which did not, however, affect the stability of the superstructure.

The cost of the breakwater had been £93,565, or £62 5s. per lineal foot, but this amount included preliminary charges, the current expenses during the last season being only £34 per ft. This sum included the repair of damages during the progress of the work, and during the two monsoons since its completion, but not the expense of engineering and office establishment. The work had been carried on in the Bombay Public Works Department by the author and his assistants, advised by Mr. William Parkes, C.E., as consulting engineer, and without the employment of any general contractor. The completion of the work was favourably noticed by all the Government authorities concerned.

PNEUMATIC TRANSMISSION OF TELEGRAMS.

At the second meeting of the session, held on the 16th ult., Mr. George Robert Stephenson,

Vice-President, in the chair, the paper read was "On the Pneumatic Transmission of Telegrams," by Mr. R. S. Culley, C.E., and Mr. R. Sabine, Assoc. Inst. C.E.

The paper commenced with a short sketch of the history of the process, and gave a statement of the extent to which it had now attained. There were twenty-four pneumatic tubes in London, of an aggregate length of 17 miles 1,160 yards—four tubes in Liverpool, three in Dublin, five in Manchester, three in Birmingham, and one in Glasgow. The London system was described. When the number of tubes became large, it was found necessary to simplify the valves and sluices, rendering them less automatic, but easier to keep in order, than the earlier apparatus. Lead was preferred to iron as the material for the tubes. An experience of twenty-one years had shown that with felt message-holders, or carriers, there was no abrasion of the metal, which became highly polished and that the tubes were practically air-tight, the exhaustion in one, 1,289 yards in length, occupying thirteen minutes in falling from 17-25 inches of mercury to atmospheric pressure, including the leakage from the valves. Iron had been used for two tubes, each 2,610 yards long, but it was found to rust rapidly, and to wear out the carriers. In the Paris system the iron tubes did not rust, and it was suggested that the difference was due to the air in Paris being carefully cooled by water, and to the friction of the heavy carriers of iron covered with leather; while the air in London was used warm from the pumps, and the carriers were made as light as possible. The diameter adopted for the tubes was  $2\frac{1}{2}$  inches, as being large enough to carry the traffic with sufficient speed, and not so large as to require a costly volume of air. The process of laying and jointing the tubes was explained. The carriers were cylindrical boxes of gutta percha, covered with shrunk druggut; their weight was  $2\frac{1}{2}$  ounces. The traffic was regulated by electric signals. Stoppages were rare, and were cleared by filling the tubes with water and applying pressure. It had never been necessary to open a lead tube, except in cases of bad construction, or of external injury caused by workmen. The engines were on the Wolff principle, and in ordinary work expended 184 I.H.P. The pumps were so arranged that each could be set to compress or to exhaust at pleasure, and the air-valves were fixed in sliding pieces, so that a defective valve could be quickly replaced.

The paper went on to show why a much more costly system of tubes, and much larger engines, were required in this country than in Paris, Berlin, or Vienna, where the pneumatic system was also in operation. On the continent, with perhaps an exception as regarded the Paris Bourse, trains of carriers were run at fixed times, in Paris every quarter of an hour; but in England a message was never delayed—speed was the first requisite, and carriers followed one another as rapidly as possible. The tubes could not, therefore, as a rule, serve more than a single station; stations could not be grouped in circles; but each tube had to be direct, and as short as possible. An opinion expressed during a former discussion of the subject, that pneumatic was more costly than electric transmission, was shown to be erroneous; for the total expense of the former in London was barely two-thirds of the amount which would have been required to pay the salaries alone of the clerks needed under the latter, irrespective of the cost of wires and instruments.

Theoretical principles were next discussed. Formulae were given for the mechanical effect performed by air in expanding, for the volume of denser air which entered the tube during the transit of a carrier, for the speed of carriers, for the times of transit, for the mean weight of a cubic foot of air both for pressure and for vacuum working, and for the work done in compressing and exhausting the air. The results of experiments followed. First, special experiments on a tube 5,523 feet long, having an intermediate station; then, on another tube 4,227 feet long, showing the

close coincidence of the actual times of transit under various pressures, with the times calculated by the formulæ previously given. The experiments showed also that the speed of a carrier driven by compressed air was greater when the pressure was cut off after each transit; or, in other words, that there was a loss of speed when the air was kept constantly in motion. In the former case the carrier started into a comparative vacuum at atmospheric pressure; in the latter case into dense air; consequently the higher the pressure employed the greater the difference in speed—with 14 lbs. pressure the difference was 6 per cent. In working by vacuum a reverse result obtained. The experiments likewise demonstrated that the pressure fell to zero at the distant end and almost regularly with the length, but not quite so. With an initial pressure equal to 18 inches of mercury the pressure at the centre of a tube 8,454 feet long was 9.75 inches instead of 9 inches, and in every case there had been a higher pressure at intermediate points than that due to their position, when the fall of pressure was represented by a straight line. This result was attributed partly to the inertia of the air, partly to friction. The experiments also showed that when compressed air was admitted into a long tube, or the air was pumped out of it, a sensible time elapsed before the permanent condition of the air pressure was established. In a tube 5,523 feet long this interval was forty-five seconds for the end next the air-pump, and about seventy-five seconds for the centre of the tube. The temperature of the air issuing from a tube was not lowered to an extent corresponding with its expansion in the tube, because it gained heat from the soil in London; but in Berlin, where the tubes were bedded in dry sand, the theoretical temperature was more nearly attained. Comparing a 3-inch tube with a 2½-inch, it was shown that more than double engine power gave only 16 per cent. higher speed in the larger tube, so that any increase of diameter above that actually necessary to carry the traffic in the required time was attended with unnecessary expenditure. Again, by doubling the pressure, only 30 per cent. in time was saved, but thrice the engine power was needed. In two tubes, each 1,000 yards long, one 8 inches and the other 2½ inches in diameter, by working the larger with a pressure of 5 lbs. and the smaller with one of 7 lbs. the transit was made in nearly equal times, while the engine powers were 2.6 H. P. and 2.1 H. P. respectively. The smaller tube at the higher pressure was therefore the more economical. The tubes should in consequence be as small as possible. The relative economy of working by vacuum, or by pressure, was then considered, to determine at which end of a tube, required for traffic in one direction only, the engine should be placed. It would at first sight appear that vacuum would be less expensive, because there was less weight of air to move than when using pressure. But as the rarefied air gained heat from the tube as it passed along, the volume which must be removed by the pump was greater than it would otherwise be; so that practically the cost of the two systems was the same. Then followed tables for the solution of the various economical questions connected with the system, and practical rules for their use, framed with the object of enabling those who wished to arrange systems of transmission to calculate the pressures, times, and power required.

## HANDICRAFT AND HANDICRAFT TOOLS.

(Continued from page 314.)

### HAMMERS.

EXCLUSIVE of the sand process there are three other modes of perforating, which in those geologically pre-historic times might have been adopted. One, the process of "jumping;" second, the process of using a flat and pointed drill; third, a rotating tube. Now, an examination of the marks within the

holes is sufficient to decide whether the "jumping" or the rotating tool has been employed. The jumping tool is used generally in quarrying and blasting, and although there is a certain rotary motion given to it by the workman, yet the striæ or lines left on the sides of the formed hole will appear as scratches parallel to the axis of the perforation. In the cases under present consideration such linear scratches have not been observed. We may, therefore, dismiss this mode of drilling. The marks which are observed are as circular scratches round the insides of the holes. A rotating stick or tube worked with sand and water would produce these marks. There are also holes which have not been completed, and in some of these the borer has left the well known cored projection rising from the base of the hole when the boring tool is tubular and does not perforate the material. In one case this cored elevation has sides parallel to the cylinder, showing very clearly that the tubular borer had a smooth interior with sides parallel to the exterior. In another case the core is coned as though the tool were carelessly made, or only hollowed, somewhat after the plan of a tinman's punch. Such holes are evidently bored with some hollow tool, and not finding in the stone age any trace of these hollow boring tools—nor even material of which such boring instruments could be made—the supposition that such holes were bored in the bronze age, before stone implements had passed away, is a very feasible suggestion.

There are, however, other peculiarities in these holes which a mechanic's eye would soon observe. Not only are there circular scratches which the tube-boring process might produce, if a large or rough piece of sand got in, but there are sometimes deep recesses in the sides of the hole not thus easily explained. Again, there are in one case two holes evidently intended to meet, being bored from opposite sides. They have run astray, and, not meeting, have been abandoned. The holes can be seen to the very bottoms. Mechanics will know that the bottoms of these holes are formed by the end of the drill, and the form of the drill may be decided from an examination of them.

The two holes referred to have been formed by a drill, either flat or shaped like an ordinary counter-sink. It may have been the end of a stick used with sand; it may, however, have been of a very different material. Again, if after drilling to a certain depth with such a drill of a flat form, either the careless sharpening, or the adoption of another drill, in which the radii from the axis of rotation to the final cutting edges of the drills are not equal, be introduced, then the hole will not be true. In one hole is a recess, as though this careless form of flat-pointed drill with somewhat angular projections had followed a truly formed drill. There is, however, another reason for concluding that these pre-historic stone implements have been drilled with a flat drill carelessly sharpened, or whose point of rotation has been lost. Those who are accustomed to lathe or machine drilling, and who have ever worked carelessly, will know that instead of forming a circular hole, as it might be expected a rotating drill must do, the careless fitting in the square holed chuck, coupled with careless grinding of the drill, or absence of uniform density in the material being drilled, combine to produce a rude triangular hole. Such a hole is formed in one of these stone implements. If formed when archaeologists suppose, viz., in pre-historic times, the men seem to have used such drills as we now use, at least shaped as we shape them, and of a flat material with cutting edges.

That (assuming the genuineness of the specimens) the people in these geologically pre-historic times bored stone in one of the ways we now use, seems clearly deducible from these facts. There is, however, a still higher puzzle in the hole in the double-edged axe of greenstone, found at Hummanly, in

Yorkshire, to be alluded to again. It is oval and tapering slightly from each face to the middle. The figure of the implement is in all respects judicious and suitable.

So far as forms and weights of hammers are concerned we may conclude that, where the earliest traces of the existence of men on the earth are met with, even there are hammers in all respects formed as modern hammers are formed, differing, it is true, in material. It must be borne in mind that the material a people use is that which they can obtain. Although a work formed by combination of separate parts in those early ages has not come down to our time, we are not left in much doubt as to some of the uses of these hammers, for they were employed in shaping material suitable for cutting instruments. Hence the great number of flint implements found in various parts of Europe and America. These flint implements may be enumerated as axes, adzes, chisels, saws, spear and arrow-heads, &c.

Now, amongst or in the neighbourhood where these are met with are found hammers of various stones. In the Christy collection of the British Museum is one of "jade" which might have been so used. A characteristic of "jade" is that it is "hard and tough" (indeed at this day in New Zealand the native tribes use the stone under conditions requiring such properties). Thus there is evidence to our hands and eyes of the mode in which flint implements were made before history was written, and it may be many thousands of years ago.

A rough lump of flint stone seems to have been taken, and then by blows from one of the stone hammers the outer irregular projections were knocked off, and the mass of remaining flint assumed a form somewhat cylindrical and fluted in concavities, the projections between the concavities being brought to a rough edge.

It must not be thought that to accomplish this required what we should call ought of artistic skill. The peculiar fracture of flint being conchoidal, similar to that which may be observed when a piece of sealing-wax or hardened pitch is broken, and the suggested mode of the formation of flints (being usually an aggregation of saline deposit around some nucleus of sponge or other organism), removes it from any of the characteristics of crystals. Hence, by a suitably directed blow, with an instrument of suitable form and material, an elongated piece, carrying with it the external angular projection of the concavity, was knocked off. Such flakes, of which many are found, are called flint knives. They were again fractured and formed into arrow and spear heads, and other instruments for war, or chase, or domestic use.

The manufacture of gun-flints, once extensively carried on in England, but now followed only at Brandon, in Norfolk, accords (so far as we can judge), even in minute particulars, with the practices adopted in the pre-historic stone age. On the table are not only all the tools actually used in the manufacture, but specimens of the progress of the manufacture, from the rough natural lump of flint to the finished gun-flint. It will be noticed that, with the exception of a short, roughly-made "chisel"—but it is more like the under swage used in a country blacksmith's shop—all the other tools are hammers of very primitive and rude construction. These hammers differ in weight and form of face, and are used according to the stage of manufacture. Without entering into details of this most primitive if not the most ancient of the many manufactures now carried on in England, it may be stated that the flint knappers at Brandon can produce from sixteen to eighteen thousand gun-flints per week—the results of pure hammer work. The speed with which flint implements can be formed may be inferred from the fact that the whole operation of fashioning a gun-flint from one of these flakes occupies less than one minute of time. These comparisons of tools used at the present time, where



gun-flints are made, with those known to belong to the stone age of pre-historic times, and which are found in the post-tertiary geological formations, force upon us the conviction that in the handling of nodules of flints and fashioning them into articles of utility, men in this century are following the very processes and using tools of similar form with those used where the very first traces of the human race are found.

Nor are there knives only which are made of flint; there is every reason to conclude that these flint flakes were fashioned to be used as rouged scrapers. There are those which appear to be so—very small and fit only to scrape smooth the smaller branches of trees. It may suffice for this lecture to say that small flints with roughened edges not only are found, but in a good light there are traces of that kind of polish on these roughened edges which we find about the teeth of saws when the instrument is used and the teeth are very blunt; they may have been used for sawing across or scraping arrows, as well as small branches of trees.

In addition to the flint saws it may be well to ask you to look at this flint adze found in Cambridgeshire. Not only is it formed with more and varied curves, but it shows great handicraft skill in so arranging the intensity and direction of the blow that the flat or under side of the flint should have been knapped at one stroke, and that other strokes should have been so well-directed as to produce the upper side, one portion of which forms the handle, and the other portion is bevelled on one side only, as our chisels, adzes, and sometimes axes are.

Hammers or mauls are not the only handicraft tools of these pre-historic times which remain until this day. There are axes, chisels, adzes, needles, besides implements used in hunting, fishing, and war. The axes and adzes bear traces of skilful mechanical construction in the adaptation of suitable forms. The one represented was found near Hummanly, Yorkshire. It is a double-edged axe of greenstone—a hard, granular crystalline substance. The handicraft labour expended on it must have been great, for the two faces are concave longitudinally, so that it expands towards and so lengthens the edges, which in the length are convex, as axes and adzes are at the present day. It will also be observed that the shaft hole is oval, and tapers slightly from the two faces to the middle. How these oval holes were formed we know not; it is, however, no disparagement of a mechanic's skill at the present day to say that many would be perplexed to execute an order for an axe of greenstone like the one now described. There is also one of the same material (greenstone) found in Guernsey. It is worthy of comparison with that just described as illustrating the ingenious devices as regards forms by which the makers of these tools suited them to the variety of work they had to execute. The tool is eleven inches long, and two and a-half inches across, and combines tools not unusually combined and with similar curvature at the present day, viz., an axe and pick.

Numbers of needles, chiefly of bone, are in the British Museum; the eyes are really most perfectly and smoothly formed. The one represented was found in Kent's Cavern, Torquay. The point is broken off, and what remains is nearly seven-eighths of an inch in length. There is one in the Geological Museum in Jermyn-street, embedded as it was first observed in the surrounding strata, as is clearly visible, especially under a magnifying glass.

(To be continued.)

#### A PAUPER GRAVE-DIGGER— A HEALTHY WORKHOUSE.

WITHIN the last few days it has been reported that no death has occurred in Donaghmore Workhouse since May last, and the Union grave-digger has been obliged to apply to the guardians for parish relief. This is rather sad for the poor grave-digger, who is

depending upon other people's deaths for his living. Such an incident as that reported at Donaghmore ought to bespeak a healthy workhouse. On such rare occasions as the present, and under similar circumstances elsewhere, we think the guardians should vote some token of their satisfaction to the grave-digger. Judges at maiden assizes, when there is no criminal case to try, are presented with a pair of white gloves, and only last week the new Lord Mayor of London was voted gloves from the almost unprecedented occurrence of having no case in his court to adjudicate upon.

If joy is felt when no crime is committed, joy should also be evidenced when the death-rate in any poorhouse is represented in cipher. Let us, therefore, inaugurate some custom of expressing satisfaction when six months pass over in a workhouse without a death. As the guardians and ratepayers are materially benefited by such an occurrence, it would be meet that the only sufferer by such a happy state of matters should receive a modest testimonial. Let us pity the case of the poor grave-digger with no one to bury, and forced to apply for relief; and let us also remember that, sooner or later, whether in a healthy workhouse or a healthy dwelling, the grave-digger will be called upon to do his last office in our behalf—that is, if cremation in the mean time does not make him, like Othello, exclaim his "occupation's gone."

#### THE LATE MR. CHARLES B. VIGNOLES, ENGINEER.

AT the advanced age of eighty-three there died on the 17th ult. an engineer of undoubted ability and eminence, and whose name was intimately connected with the modern history of his profession. He was born at Woodbrook, Co. Wexford, in 1792, and was descended from a Huguenot family, a branch of which settled down in Portarlinton. Mr. Vignoles' father was a military captain, and married a daughter of Dr. Hutton, author of some mathematical works, and a professor of mathematics at Woolwich. The infancy of the late engineer was shrouded with troubles. The regiment to which his father belonged was ordered out to the West Indies, wife and infant accompanying. The father was taken prisoner by the French when they retook the Island of Guadaloupe, and shortly afterwards father and mother died of yellow fever. Major Hutton, the uncle (afterwards General Hutton), regained possession of the little infant, and after it being carried home to England, the child was brought up under the care of his grandfather, Dr. Hutton. The late engineer himself entered the army in early life, and saw some service in the Peninsular War. He left the army before the end of the war in 1815, and visited the United States, where he made some topographical surveys. In England his railway engineering career commenced in 1825 on the projected Liverpool and Manchester Railway, and from that time until a few years ago he was actively engaged in engineering works at home and abroad. His name was well known in Ireland in connection with the first railway constructed in this country—the Dublin and Kingstown Railway; and, if we remember aright, he also took part in several surveys. On another occasion we may give an enumeration of his works and surroundings in this country. We will conclude for the present by mentioning that he was elected a member of the Institution of Civil Engineers in 1827, and became its President in 1870. He was also a member of the Royal Society, and a Fellow of the Astronomical Society. Mr. Vignoles leaves a widow and one daughter and three sons. His eldest grandson and pupil is Executive Engineer on the State Railways in Rajpootana, at Ajmere. The great engineer was a man of wonderful activity and energy throughout his long life, and, in dying, he has died indeed full of years and honours, and universally respected.

#### THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

THE opening meeting was held on Monday evening, 22nd ult., when the following were elected as council and officers for the session 1875-6:—*President*—John M'Curdy. *Vice-Presidents*—Sir Charles Lanyon, R.H.A.; J. H. Owen, M.A.; Sandham Symes, Parke Neville, C.E.; C. Geoghegan. *Ordinary Members of Council*—G. C. Ashlin, F. V. Clarendon, B.A.; J. Rawson Carroll, W. Sidney Cox, T. Drew, R.H.A.; F. Franklin, W. M. Mitchell, J. J. O'Callaghan, H. Smyth, C.E.; W. Stirling. *Treasurer*—Sandham Symes, V.P. *Hon. Secretary*—G. C. Henderson. *Auditors*—James Bell, C.E., Fellow; B. T. Patterson, Associate.

#### THE ARCHITECTURAL ASSOCIATION OF IRELAND.

THE opening meeting of the session 1875-6 was held at the rooms 212 Great Brunswick-street, on Thursday evening, 25th ult., when there was a large attendance of the members and others interested in the art progress of the country. The rooms were tastefully decorated with the drawings submitted in competition for the Association and other prizes, together with numerous paintings, drawings, and photographs lent for the occasion. Specimens of novel designs in Belgian and other room papers were exhibited by Messrs. Dockrell, Sons and Co.; upholstery by Messrs. Wm. Fry and Co.; encaustic tiles by Messrs. Monsell, Mitchell and Co. (agents for the Campbell Brick and Tile Co.), &c.

The chair was taken by the newly-elected president, Mr. Thomas Drew, R.H.A., F.R.I.B.A., who called upon one of the hon. secretaries to read the annual report, from which we take the following extracts:—

"The committee feel justified in congratulating the Association on the success of the inaugural meeting of last session; for, although of those who had been invited, many were precluded from attending by the inclemency of the weather, nevertheless, a very large proportion were present, indicating, in the opinion of the committee, that the association is not unfavourably regarded by a large section of the members of the different learned professions in this city. Notwithstanding that the opening meeting seemed to augur well for the session, the committee regret, that at the other general meetings the attendance did not exhibit any marked improvement over those of previous sessions. With reference to the Classes of Construction and Design, the falling off in the attendance has been unmistakeable, and, as a consequence, the amount of business transacted at several of the meetings merely nominal. The committee desire to record their thanks to Arthur Hill, Esq., of Cork, for the valuable addition made by him to the library of the Association; and they beg, moreover, to reiterate the appeal made last year to the profession, that they will be favoured with loans of books to enable them to foster the healthy taste exhibited by the younger members of the Association for sound professional literature. The committee hope that the papers which have been promised by distinguished members of the profession will ensure a larger attendance at the general meetings for the future, and that the changes which they propose to introduce into the working of the Classes of Design and Construction will have the effect of inducing a larger number of members to support these important means, by which an architectural student may obtain a sound and practical knowledge of his profession, such as cannot ordinarily be learned except by a long and costly experience."

The President proceeded to distribute the prizes (a list of which we gave in our last number), and referred to the fact that the two best prizes had been carried off by Englishmen, and hoped that the circumstance would make Irish students look to their honors in future.

The President then read the inaugural address, which we print on another page.

At its conclusion, on the motion of Mr. T. H. Longfield, seconded by Mr. J. L. Robinson, the chair was vacated by Mr. Drew and succeeded to by Mr. W. M. Mitchell, V.P.

Mr. Maurice Brooks, M.P., in proposing

the vote of thanks to the President for his valuable address, said that his own avocations, and the matters with which he had to do, did not fit him for giving an opinion on a subject requiring so much cultivated imagination and technical education as architecture. But from the opportunities he had of judging, he agreed with the President that the system of art education in this country was not as perfect as could be wished.

Mr. P. J. Smyth, M.P., seconded the vote of thanks and added that, although the progress of education among the lower classes in the last few years had been considerable, the advance of higher education had not been so marked. The languages of Greece and Rome were accounted dead, but the architecture of those countries were living monuments, that he who ran might read. The President had made his name well known in Dublin by his works, and he hoped his suggestions would fructify and be adopted by the younger members of the architectural profession.

Mr. O'Callaghan said it was not necessary for him to stand up to defend Irish architectural students because two prizes of the Association had been carried off by Englishmen, and did not think we ought to be discouraged by the fact. He had known Irishmen to carry away prizes under similar, but far more trying, circumstances from the British Institute, in which competition the educational advantages of English and Scotch students must not be forgotten. He agreed with the President that the enormous expenditure by the Government at South Kensington had been productive of very little good; and he thought it was a great injustice to this city that there was no proper museum of art.

Mr. J. Rawson Carroll, in proposing that the address be printed at the expense of the Association, said he regretted that Mr. Drew found it necessary to object to the present state of architectural education, and thought that young men should work harder; that instead of working from ten till four, he would have them work from nine till six, or even till nine o'clock at night if necessary. With regard to perspective, he thought that it required more study than Mr. Drew had said. Finally, young men should learn that no art was acquired except by hard work.

Major Campbell, R.E., in seconding the resolution, said he was connected with a department that allowed very little art in its buildings. But the fact that one of the assistants had that night been awarded a prize showed, he thought, that they were not wholly devoid of men of architectural ability. The Dublin barracks were anything but ornamental, and should be viewed by night rather than by day, for less of them would then be seen. He did not, like Ruskin, wish to be a dog or a bee, but he thought, if he had to make a choice, he would like to be a rat, that he might properly appreciate those buildings. Our ships, which carry the British flag over the sea—and sometimes under it, by the way,—were considered models of their kind, but the same could not be said of the buildings erected for the use of the army.

Mr. Drew, in returning thanks, regretted that the subject treated of in his address had not been more fully discussed, as no meeting could be a truly Irish one in which there was not a row. On the subject of perspective, he did not in his address refer, as Mr. Carroll supposed, to the practice but to the theory as being easy of learning. With reference to architectural draughtsmen, he was ready to admit that several of the most successful had been educated in the Irish School; they were the exception and not the rule, and it was to remedy our deficiencies in this respect he made the reproaches in his address.

#### ARCHITECTURAL ASSOCIATION, (LONDON).

At the last meeting of this body, held on the 20th ult., in Conduit-street, Mr. John S. Quilter, president, in the chair, a paper was read by Mr. Wyke Bayliss, F.S.A., on "The

Use of the Supernatural in Art." The paper was lengthy and interesting. At the next meeting, to be held on the 8th instant, Mr. W. H. White will describe "How the Parisians Build a House in Flats." It shows the success of this association, that at nearly every meeting there are several nominations for membership.

#### THE ROYAL IRISH ACADEMY.

The proceedings of the general meeting of our National Academy, held on the 8th ult., were exceedingly interesting. The address of the President, Dr. William Stokes (a summary of which we give below), touches on questions of growing and lasting importance. We direct particular attention to the President's remarks respecting our National Monuments, and what is being done in the matter of their preservation rather than of their "restoration." We do hope from our hearts that the most valuable of our ancient buildings may be saved from the idiotic tinkering of some of our modern vandal architects and Gothic "restorers."

We would also desire to note, among the papers read at the Academy, one of peculiar historical interest, by Samuel Ferguson, LL.D., V.P., "On the alleged Literary Forgery respecting Sun-Worship on Mount Callan." We are pleased to see that this paper was referred to the council for publication. We are glad to see fresh evidences of activity on the part of members of our truly National Academy.

The president commenced his address by stating that during the past session they had lost four ordinary members and three honorary ones. He then continued as follows:—Among the many interesting papers of the past year, those of Dr. Sigerson were peculiarly valuable. The first, "On Heat as a Factor in Vital Action;" the second, "On a cause of Buoyancy of Bodies of a greater Density than Water;" and the third treated of a subject of much general interest, "The various causes of Changes in the Physical Geography of Ireland." The President, after referring to other papers read at the Academy, said he wished to add a few words in connection with the Archaeological department of this body, and he was anxious to bring forward one or two points in reference to the future action of the committee of Polite Literature and Antiquities—the first being Sir John Lubbock's Ancient Monuments Bill. He sincerely hoped that he might see that important measure passed during the coming session of Parliament, and no effort should be spared by the Irish members to assist Sir John Lubbock in his praiseworthy object. He should strongly urge upon the Academy the great desirability of recommending a uniform administration and consolidation of the funds for the preservation of the Ancient Monuments of this country, and that the administration and direction of this work should be left in the hands of the Irish Government. The second point to which he wished to draw their attention was that the list of Ancient Ecclesiastical Monuments which was now before the Church Temporalities Commissioners was extremely defective. When the great wealth of the country in important ecclesiastical remains was considered, that only twenty monuments were specified was much to be lamented. Out of the 125 Round Towers which are noted as existing at the close of the last century, but 75 were now standing. The great crosses, so many in number, which exhibited the most ancient and perfect examples of sculpture in the country, and a much larger number of the most important and ancient churches should be included. He expressed his gratification with the action of the Board of Works in entrusting the supervision of the necessary repairs of these monuments to Mr. Deane. The work already achieved at Cashel and Ardmore of preservation rather than restoration gave the best hopes for the cause of this department of Irish Archaeology. He complained of the vandalism to which pre-

viously, in many cases, these great monuments had been subjected. The President then spoke of the important changes recently effected in the museum of the Academy; amongst others that objects of chief value were placed in a fire-proof room. He spoke of the valuable collection which it contained, and mentioned as an example of the interesting nature of the literary pieces to be found in ancient Irish manuscripts in process of transcription, "The Vision of Adamnan."

Samuel Ferguson, LL.D., V.P., read a paper "On the alleged Literary Forgery respecting Sun-Worship on Mount Callan." Dr. Ferguson argued that the impeached stanzas from the poem called "The Battle of Gabhra" were not fabricated, as alleged, by the late Theophilus O'Flanagan, because, in translating them, O'Flanagan diminished their corroborative force by imperfect translation, and because they contain matter difficult to reconcile with the case in aid of which they are supposed to have been invented. Dr. Ferguson further adduced evidence that the stanzas existed in a MS. compiled in 1720, before O'Flanagan was born.

Dr. Macalister read a paper entitled "Notes on Anomalies in the Course and Distribution of Nerves in Man."

A stated general meeting of the Academy was held last evening, a report of which is held over till our next.

#### THE MONUMENT OF SIR TOBY BUTLER.

In a letter to a daily contemporary Mr. N. C. Colclough, C.E., of Great Brunswick-street, draws attention to the ruinous state of the monument of Sir Theobald Butler (or Sir Toby, as he was more popularly known) in St. James's Churchyard. It may be remembered that we have ourselves directed attention to this monument four years since, giving an illustration\* of it and some other particulars, our object being the same as Mr. Colclough's—to lead to its reparation. A small sum would be sufficient for the purpose, and we have little doubt the few pounds necessary could be easily obtained either by a public or private appeal to those who should feel interested in the preservation of the monument, and to whom the memory of Sir Theobald Butler is naturally dear. We should think that any appeal to the Roman Catholic Hierarchy of Ireland, or to the leading members of the Bar, both Protestant and Catholic, would be favourably responded to. We trust that some action will be taken soon, and that the monument will be saved from the utter ruin that threatens it.

*En passant*, there are some odd descriptive mistakes in Mr. Colclough's letter, which we shall not stop now to particularise, as we are one with him in the commendable object he has in view.

#### THE HEALTH OF DUBLIN.

At the last meeting of the Dublin Sanitary Association attention was directed to the Registrar-General's return for the week ending 20th ult., which showed that the death-rate in Dublin was unusually high, being 30.5 per 1,000, while that of 18 large English towns was only 24.4 per 1,000. Zymotic diseases proved very fatal in Dublin, the death-rate from this class of disease being 6.0 per 1,000, as compared with 4.1 per 1,000 in 18 English towns. The Inspection Committee sent in their usual weekly report, which stated that Dignam-court was in a filthy condition, heaps of putrifying cabbage, with ashes and rubbish causing an abominable smell injurious to health. The court is a narrow one, so that air has not free access. The basement of the house 16 Duke-street and the court attached thereto were also reported in a most filthy state. This house is in the same state as it was in 1866, when 13, it is believed, of its inhabitants died of cholera.

\* See IRISH BUILDER for Nov. 16th, 1871.

### NEW CATHOLIC CHURCH, INCHICORE, COUNTY DUBLIN.

With present number we give the front elevation of a church proposed to be erected at Inchicore. The plans are not fully matured as yet, and so we must hold over a description of the edifice to a future occasion.

### BOOKS RECEIVED.

*The Timber Importer's, Timber Merchant's, and Builder's Standard Guide.* By Richard E. Grandy. London: Lockwood and Co.

THE world-wide reputation secured for the manuals issued by the Messrs. Lockwood under the title of "Weale's Rudimentary Series" renders it almost unnecessary to say more than that the issue of a second edition of the work above named testifies to its appreciation by all connected with the Timber trade. It embraces much valuable information for the Builder and Salesman, and by them will be found of unquestionable practical value.

*The Irish Society of London: its Management and Expenditure.* Londonderry: office of Journal.

THIS pamphlet contains extracts from the following Reports:—Of the Royal Commission appointed to inquire into the Municipal Corporations of England and Wales, and also of that appointed for Ireland. It also embraces extracts from a Report of the Royal Commission on the Corporation of London in 1854, as relates to the "Hon. the Irish Society." We shall have occasion to refer to it hereafter.

### CORRESPONDENCE.

#### "CHURCH BUILDING."

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In a paper on "Church Building," read before the Belfast Architectural Association, and published in your journal, Mr. Hevey, F.R.I.A.I., refers to a small country church in the porch of which "there is the extraordinary architectural phenomenon of the central pier (the door being a double one) having a capital on a column projecting beyond everything and carrying nothing." Had Mr. Hevey, F.R.I.A.I., been more careful in collecting his illustrations, he could have seen that the "phenomenon" to which he referred was the builder's temporary blunder, and formed no part of the architect's design. What he saw was rectified before the adjoining buildings were finished, and the porch is now complete in accordance with the architect's design. No such "phenomenon" was ever intended, and does not really exist. It is said "Children and —, &c., should not judge unfinished work."

WILLIAM GRAY.

### THE CORPORATION AND THE GAS COMPANY.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—The Dublin municipal elections have again taken place, and the complexion of the Town Council will not be materially altered. The burden of taxation has been increased to an extent which is positively oppressive, and, if possible, will be increased still more. The Corporation seem to have neither the disposition nor the power to put a check on the present extravagant expenditure. Committees, on many occasions, have been at the mercy of officials, and have almost blindly adopted their recommendations. Well-meaning candidates for municipal honours, when elected, honestly struggle to effect a change, but a very brief experience of the workings of the Town Council opens their eyes to the fact that all the displays made in the City Hall are similar to that of a company of theatrical performers acting the parts they have previously rehearsed. If the momentary use of the term "municipal swindling" were granted to me, I would employ it here in describing their performance.

A year ago new blood was infused into the Corporation, and at their first monthly meeting, the interest of the shareholders of the Gas Company was supported by the attending members. Professors of all shades of religious and political opinions joined together to effect the permanent appointment of the brother-in-law of the manager of the Gas Works, as inspector of the public lights, and of the measures used in the sale of gas. On the occasion of that little job 35 members attended, and 33 of them voted for that questionable appointment in the face of the frequently published fact, that nearly all the metered public lamps, then, and for some months previous, had burners consuming a greater bulk of gas than any of their nine dependent lamps had, and that a bulk of gas was indicated as being consumed in, and charged for to all the public lamps that was not consumed in them. In what English or Scotch corporation would such doings be tolerated? Traders are frequently prosecuted for using false weights and measures, but a prosecution for an unjust gas meter is never heard of in the Dublin gas district.

The Corporation greed of patronage, &c., the ignorant tyranny exhibited in the endeavour to grasp it, and the illegality of their acts as shown in the recent judgments given in the Queen's Bench and Vice-Chancellor's Courts, has left the Dublin Corporation in such a pitiable plight, that their enemies might, in sneering at them, almost use the words of 2 Kings xviii., 27.

In addition to an almost complete change in the members of the Corporation, it has been frequently remarked, that what appears to be really wanted in Dublin, in order to release the citizens from the relics of the torn swaddling bands of the Old Corporation, the practical juggling of the present reformed one, is the lifting power of free public reading-rooms and lending libraries. The establishment of such free institutions would doubtless be opposed on the ground of want of money by the Corporation, who will freely pay, if permitted by the ratepayers to do so, upwards of £1,000 for gas, charged for to the public lights, but which bulk of gas was not burnt in them during the periods of its stated consumption.—I am, sir, yours, &c.,

41 Cuffe-street,

26th November, 1875.

JAMES KIRBY.

### NEW METHODIST CHURCH, CARLISLE CIRCUS, BELFAST.\*

RAPIDLY as this magnificent edifice is being pushed forward, it will yet be Easter before it is opened for Divine worship. So far as the exterior is concerned the building seems finished. All the forest of scaffolding which concealed the exquisite details of its ornate design has been removed, and every feature of the architecture, from base to summit, is observable by passers by. Grand and beautiful as the church early promised to be, its style, proportions and outline now exceed all the anticipations that were formed regarding what its appearance would be. Its massiveness and elaborate ornamentation are strikingly attractive. Its lines are graceful to a degree, and most pleasing to the eye. Indeed, the more the building is examined the more elegant and artistic seem its outward embellishments. It has been objected that, from a purely architectural point of view, the church is not without faults and blemish. Certainly it requires the purely æsthetic vision to detect them. No ecclesiastical structure in Belfast has been more spoken of, none more rigidly criticised by the general public. The whole tenor of the consequent opinion is most favourable. It stands admired by all, and is justly accounted one of the handsomest models of church architecture in Ireland. There must be something more than ordinary in the plan which finds approval in every judgment, and satisfies the exacting requirements of the most cultured, as well as of the popular taste. The interior of the structure will be in proper keeping with the richness of the exterior. The work has not as yet so far progressed therein as to give a spectator any definite conception of its ultimate arrangement. It may be interesting, however, to learn that the pews will be of pitch pine, open, with ornamental bench ends and carved heads. They will be without doors, an advantage which will be justly appreciated by their occupants. The pulpit, we understand, has not yet been designed, but it is intended that it shall harmonise to the full with the characteristic grandeur of the building. A splendid organ has also been provided for. This will be of the finest character, costly, and built in the most skilful manner. When it is mentioned that the heating and lighting of the building have been entrusted to the Messrs. Patterson and Co., it is unnecessary to say more than that they will be introduced in the

most improved form, and the form most conducive to the comfort of the congregation. The church, it should be stated, will be approached by capacious cut stone steps, and round it there will be a neat series of railings, with cut stone bastions. Recently there has been some conversation in Methodist circles with regard to the desirability of adding to the church a school-room, a lecture-room, and a minister's residence. A number of influential gentlemen are most anxious that the munificence of Mr. Carlisle should be thus supplemented. The estimated extra cost would be from £10,000 to £12,000, and several gentlemen in town have expressed their willingness to contribute £1,000 each provided the project is realised. In all probability, if sufficient ground can be obtained from the Charitable Society, who own the contemplated site, these buildings will be erected. Should they be so they will prove an important addition and benefit to the church, and will still further adorn a portion of the town already so amply beautified by church architecture.

### THE EUCALYPTUS.

WE have more than once called attention in our columns to the valuable medicinal properties of the *Eucalyptus*, and advocated the more extensive culture of that tree, especially at some of our more unhealthy military stations abroad. A letter lately written by Dr. Amédée Maurin, a French physician practising in Algeria, and a *lauréat* of the institute, confirms in a striking manner the opinions we then expressed. Dr. Maurin states that an experience of fifteen years has demonstrated that those farms in Algeria which are freely planted with *Eucalyptus* trees enjoy a complete immunity from intermittent fevers, and that it is a marvellous spectacle to see such fevers gradually disappear as the young trees grow up, from localities hitherto notoriously pestilential, and he urges upon the French Government the expediency of imposing upon landowners the obligation of planting and maintaining upon their several estates large numbers of these trees. In Algeria, as in other hot climates, vegetation sleeps almost entirely during the torrid summer months, and consequently the production of oxygen ceases, while on the other hand carbonic acid and hydro-carbonic gases are given forth in large quantities; in other words the very elements which arise from decomposing vegetation, and which are the cause of miasmatic fevers, are generated on all sides. The *Eucalyptus* alone preserves its usual functions during summer heat, and consequently each tree of this species serves as a generator of oxygen, and as an absorbent of the elements of fever. The product obtained by distilling the leaves also possesses wonderful curative powers, and may be used with good effect in cases of neuralgia, fever, and catarrhal affections of the bronchial tubes; while, according to the unanimous testimony of doctors of long experience in Algeria, the employment of the leaves in aromatic baths as a cure for nervous and rheumatic pains has succeeded almost beyond belief. With regard to this point Dr. Maurin states, that the excess of humidity in Algeria during the last winter caused rheumatic affections to be developed with an intensity before unheard of, and that he found hot baths with an infusion of the leaves of the *Eucalyptus* the most certain and effectual remedy that he could adopt. His method of preparing these baths was to take two pounds of fresh leaves, or one pound of leaves which had been dried in the shade, and infuse them in boiling water in an earthen or wooden vessel the day before the bath was required, pouring the infusion when it was to be used into a bath as hot as the patient could bear it. In this the patient was to stop for ten or fifteen minutes, when a profuse perspiration would ensue. He was then to be taken out, wrapped in warm linen, and to lie down in the room in which the bath had been taken, when he would continue to perspire freely for half or three-quarters of an hour longer. Finally, it must be remembered that the commercial value of the *Eucalyptus* ought to render it attractive to the speculator. The trunk, when full grown, furnishes beautiful planks; the bark, which falls every year, is useful for tanning purposes; while the leaves contain an immense amount of essence which may be utilised as a varnish.—Broad Arrow.

### WOOD PAVEMENT.

COMMITTEE No. 1 had under consideration on Saturday a proposal from the Ligno-Mineral Company to lay down yellow pine pavement in the city at the rate of 18s. 6d. per square yard, or a "hard wood" at 15s. 6d. The committee wisely declined to introduce such an expensive description of pavement until its durability can be satisfactorily tested.

\* Extracted from *Belfast News-Letter* of 19th ult.



## THE GRATTAN MONUMENT.

A MEETING of the Grattan Monument Committee was held yesterday at the Mansion House. Attention was directed by several members as to the impatience of the public with reference to the delay in unveiling the statue.

Hon. J. P. Vereker (hon. sec.) said that there never was a work about which there was less reason to complain than that of the Grattan Monument. Not one day had been lost in bringing it to completion, and if the Irish nation would possess one of the finest works that ever emanated from the hands of Foley, he had no hesitation in saying that this result was due to the assiduity and business capacity of those who were on the committee. The business had been transacted with efficiency and with a degree of economy unparalleled in similar movements. We should be very glad to have the hoarding removed, but as the pedestal is not yet completed, and as the Corporation have not yet put up the lamps, we are obliged to have a watchman there every night at some expense, and to keep up the hoarding in order to protect the statue from the possible danger of defacement. We are greatly indebted to Mr. Murphy, to whom the structure of the pedestal was entrusted, and who has done his work in the most admirable manner. In every aspect the Grattan Memorial was a success, and the monument was from the commencement sustained with great public spirit on every side, without distinction of creed or party.

A resolution was passed fixing the inauguration ceremonial for the 6th of January. The names of the Duke of Leinster, Lord Charlemont, and Lord Powerscourt were mentioned as chairman on the occasion of the inauguration, these noblemen having been large subscribers and having taken a lively interest in all the proceedings. The names of Lord O'Hagan (who subscribed 100 guineas), A. M. Sullivan (who gave nearly £400 to form the nucleus of the Grattan Monument fund), Mitchell Henry, M.P.; Mr. Plunket, M.P., Solicitor-General; Mr. Butt, M.P.; and Mr. Dease, M.P., were put forward as the proposers and seconders of resolutions. A sub-committee, consisting of T. D. Sullivan, Esq., Dr. Shaw, F.T.C.D., and Mr. Murphy, architect, was appointed to take charge of all the arrangements for the ceremonial; and it was resolved to issue invitations to all Irish peers, Irish members of Parliament, mayors of Irish Corporations, and other distinguished persons.

The committee, having transacted some other formal business, adjourned.

## HOME AND FOREIGN NOTES.

A CENTENARIAN.—The death is recorded of a woman named Anne M'Eroy, of the townland of Neigh, Co. Armagh, in the 107th year of her age.

A new organ of superior tone and finish, has been erected in Ballinacagh Church, County Kildare, by Messrs. W. Browne and Son, of Camden-street, Dublin.

ANOTHER MEMORIAL OF O'CONNELL.—At Cahirciveen a movement has been set on foot for the purpose of raising, by penny subscriptions, the sum of £2,000, to erect a monument at Lower Cahane, the birthplace of O'Connell.

GAS IN GALWAY.—Consumers of gas in this town complain that it is deficient in illuminating power, and impure in quality, and the price charged excessive. They have resolved to cease using gas after 3rd prox., unless an improvement be effected before that date.

ROYAL DUBLIN SOCIETY.—Attendance of the public at the several departments of the society for week ending 27th ult. Library—Ladies 74; gentlemen 374. School of Art—Students—Ladies 203; gentlemen 304. Museum of Natural History, 1,102.

INSTITUTION OF CIVIL ENGINEERS OF IRELAND.—The annual general meeting will be held in the Museum Buildings, Trinity College, this evening. Business:—To elect council and officers for ensuing year, and to ballot for new members. A paper on "Diminution of Friction between Tyres and Rails," will be read by Mr. D. M'Dowell.

A KNACKER'S YARD IN THE CITY.—Several residents in the locality of Red Cow-lane protest ("in a sanitary point of view") against the re-establishment of a knacker's yard in that thickly-populated neighbourhood. The Public Health Committee will, no doubt, interfere in their behalf.

Co. DOWN.—It is intended to apply to Parliament for the incorporation of a company to make and maintain a line of railway from Greencastle to Killeel, with a branch to the harbour at latter town, and also to construct a pier at Greencastle, from whence steam ferries will ply to Greenore on the opposite side of Carlingford Lough.

GAS FROM CORK.—Late experiments in a cork factory at Bordeaux resulted favorably for the manufacture of gas from cork shavings and refuse; and in consequence the town of Nérac, near Bordeaux, has ordered the erection of works for producing gas from this material. It is stated that the flame is much whiter, and consequently brighter than that produced from coal-gas, and also that its density is very much greater.

DISPOSAL OF SEWAGE.—Sir Joseph Bazalgette has given it as his opinion that the only way to dispose of the sewage of the Thames Valley is to remove it from the neighbourhood, and has submitted a joint Thames Valley and Kent scheme, which he estimates would cost £500,000. That sum could be borrowed for a term of sixty years and paid off with a 6d. rate on a rateable value of the Thames Valley. He proposes to retain the solid portion of the sewage and utilise it over fifteen acres of land at the outfall, or sell it as manure.

THE "CROMWELL" STATUE.—The Academy says:—"The question that interested the quidnuncs of the metropolis [London] some years ago—Shall Cromwell have a statue?—has been answered in the affirmative in Manchester. Mrs. Abel Heywood has presented to that city a bronze statue of the Protector. It has been modelled by Mr. Noble, is nine feet high, weighs upwards of a ton, and has cost about £1,600. The pedestal is a solid block of rough hewn granite. Cromwell is represented in the military costume of the period, and the features are dignified and expressive."

COMBINED DRAINAGE.—The plan of combined drainage has been adopted at Nottingham. The town contains about 100,000 inhabitants, and is surrounded by numerous populous suburbs, all of which, with the town, lie more or less upon the banks of the River Trent, and its tributary the Leen. There being a number of villages round about not properly drained, the whole has been massed into one district for sanitary purposes, and a system of drainage established throughout. The great future is an intercepting sewer, six miles in length, so that the Trent will no longer receive the sewage of the locality.—*Sanitary Record*.

DROGHEDA.—The local Conservative announces that the municipal elections have passed over without producing much change. Practically speaking there has been only one new member returned, and as this gentleman is of the precise shade of politics professed by his predecessor, the balance of parties in this council—for it must be known that this body think there is a Home Rule way of making sewers and sweeping the streets, and also that there is a Liberal way of doing so, a difference which accounts for the miserable performance of both at present—remains exactly as it was before the election.

THE SHAKESPEARE MEMORIAL, STRATFORD.—The intended memorial, which will comprise a theatre, library, and picture gallery, is to be an ornamental structure, standing isolated in a garden, and to be seen from all sides. The cost is estimated at from £8,000 to £10,000. It is considered by the council that £5,000 or £6,000 should enable them to complete the theatre sufficiently for temporary use. The arrangements made by the council and conditions laid down for competing architects, and the terms of the awards, appear to us to be unobjectionable.

## TO CORRESPONDENTS.

CITY IMPROVEMENTS.—In our last issue and in our present we have passed under review some long-projected improvements. We will probably return to the subject again, and refreshen the memories of some enquiring correspondents and citizens.

ART AND PHILOSOPHY.—A thoughtful and interesting address on "The Position of Modern Art and its General Philosophy" was delivered at the opening meeting of the University Philosophical Society on the 25th ult., by the president, Mr. Arthur Patton. We may give this address, or a portion, in our next issue.

A CITIZEN.—It would be too premature for us to say that the Corporation, in face of the injunction, will henceforth mend their line and sin no more. They are in the habit of doing things by hook or by crook, even when their line breaks.

OCTOGENARIAN.—Would be glad to receive any old waifs and strays agent the locality of which you were an old inhabitant.

CITY COMPANIES.—The London City Companies, a correspondent is informed, are only nominal guilds of trade. The members of each are of a variety of trades and occupations; originally it was otherwise. Only a few of these City Companies have responded to repeated calls upon them by the public to devote some of their funds for the furtherance of education and art purposes.

OBSTRUCTIONS.—We notice that many obstructions in our thoroughfares which we pointed out have been removed. A cooper was last week fined 5s. for keeping casks in front of three houses in Upper Abbey-street. He claims a right to occupy so much of the footway as was formerly occupied by a portico and steps, these having been removed many years since. A case is to be stated for decision by the Court of Queen's Bench.

LIFTER BRIDGE.—Your suggestion as to the site of the new bridge east of Carlisle is worthy of consideration. The filling up of the Old Dock and the removal of a portion of the

warehouses on its north side, could not be an expensive job. By continuing Amlens-street to the south side of the dock, and placing the new bridge at this point on the river, a fine thoroughfare might be opened up to the end of Lombard-street. This would connect the termini of the railways north and south, and afford the largest amount of public convenience. The noble pile of the Custom House could be entirely isolated, and seen to advantage from all sides.

MEM. A. A. I.—We are unable to answer the question you put as to the number of those who have attended the Drawing School of the Royal Dublin Society, and who were at same time articled pupils in architects' offices, whose parents had paid large fees on condition of their sons being taught the noble profession. The other part of your letter refers to matters which it would be impolitic for us to discuss just now.

ARTISAN.—The Schools of the Royal Dublin Society will afford you the facilities you require.

C. E. (London).—Did not see it in time, or else we should gladly have noticed it.

C. R. (North Burwick).—Cannot find space in our present issue.

T. J. (Belfast).—Sketches in pen and ink, suitable for photolithography, should be sent to our office.

A. W. B.—A Carpenter—A Manufacturer (Glasgow)—T. C. D. (Stephen's green)—Archæologist (Cork)—H. B.—An Artist—H. C.—S. & Co.—F. F. (London), &c.

\* Several articles in type are held over, even although we have added two pages of matter to our present issue.

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## NOTICE.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

Correspondents should send their names and addresses, not necessarily for publication.

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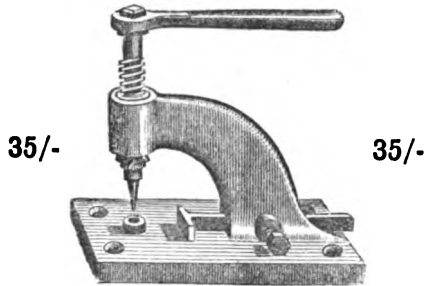
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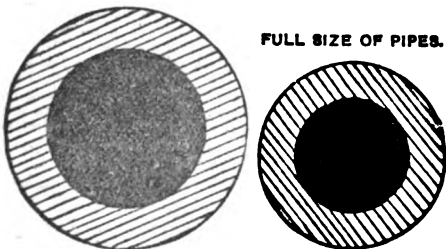
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## TO THE CLOSE OF THE TWELFTH CENTURY;

ACCOMPANIED BY

Interesting Historical and Antiquarian Notices

OF

NUMEROUS ANCIENT REMAINS OF THAT PERIOD.

BY

**RICHARD R. BRASH, Architect, M.R.I.A., F.S.A. Scot.,**

FELLOW OF THE ROYAL HIST. AND ARCHL. ASSOC. IRELAND.

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# The Irish Builder.

VOL. XVII.—No. 384.

*On Street Improvement, and its Effects.*



**STREET** with no thoroughfare, or a bad entry or exit, is a street that can never improve much, except under the most exceptional circumstances. If it opens out in its centre in the form of a square

or garden, and if all the houses around are private, the place may exist for some years, and be selected as a place of residence by some well-to-do people, but its hedged-around character and the nature of its approaches will speedily ruin it. Many such places formerly existed and still exist in our cities; several degenerated into town swamps, and some few were saved by the timely interference of public improvers in the shape of a corporation or a board of commissioners. Instances, however, are not rare where vast public and street improvement has taken place through the influence and aid of a private individual.

In our two last issues we enumerated some public improvements that took place in Dublin during the era of the Irish Parliament, and also ones carried out by the old Wide Streets Commissioners. We indicated other long-projected but still unattempted works, and now we would carry our remarks further by pointing out urgent wants in the same direction.

A narrow winding street, with no direct and wide approaches, is a street in these days fatal to the establishment of successful trade. If a street has a steep incline, and if its approaches at right angles have also steep inclines, such streets will be shunned as far as possible both by passenger and vehicular traffic. Nothing but a business necessity will compel persons to pass through such thoroughfares, or resort to them for obtaining their domestic or other wants.

In Dublin at present we have numerous streets and thoroughfares north and south of the Liffey hastening to speedy decay, and their house property in a state of dilapidation, through the want of healthy open approaches or a more direct access to them than what exists. Indeed several of such streets have been going into ruin for the last half century, and their once handsome specimens of domestic architecture are being converted gradually into lodging-houses, or houses occupied by tenant lodgers. Fine private mansions which, had there been some street improvements made, would have been converted into large marts and warehouses, have now their ground floors transformed into butchers', provision dealers', and even green-grocers' shops; and where once rolled by grand aristocratic equipages, small trade and much noise, dirt, and squalor is to be witnessed.

Dublin cannot be a healthy city until con-

siderable improvement takes place in respect to her streets, and many of these streets must still continue to decline as places of trade if better and more direct approaches are not constructed. Two or more direct approaches are needed across the city from north to south. It would have been a happy thought if some years since before the "restoration" of St. Patrick's and Christ Church Cathedrals were determined upon, that a somewhat level thoroughfare was constructed from the former cathedral, and passing by the latter down Winetavern-street, and then across the present Richmond Bridge. This street improvement, however, should not stop here, but should be continued across by Greek-street, Beresford-street, and on to the Broadstone by Constitution Hill. To make this improvement complete, New-street on the south side should also be improved, and then there would be a nearly direct roadway from Harold's-cross to Glasnevin.

We have no Metropolitan Board of Works in Dublin like to that of London to carry out this rather vast street improvement, nor are the financial circumstances of the city, under the regime of our present Corporation, of such a character as to give us a hope of such a necessary improvement being carried out as we have slightly sketched. There would be little engineering difficulties in the way of cutting through the hill between St. Patrick's Cathedral and the bottom of Winetavern-street, or of otherwise adopting the cross approaches. A large amount of house property, but not of a valuable kind, would have to be displaced, and the viaduct principle would have to come into operation between the head of Winetavern-street, and Nicholas-street, and elsewhere, unless other modifications in carrying out the plan of the new thoroughfare were adopted. It is not our purpose here to supply a well-digested plan, but to point out a desirable public improvement.

If we look at other of our present thoroughfares crossing the Liffey from north to south, a glance will show us their great defects. From Church-street, the ascent, once the river is crossed, to Corn Market is steep and irregular. The same may be said of Bridgefoot-street. Access from Queen-street to Thomas-street, once the river is crossed, is most difficult and harassing even to man as well as beast. Although Capel-street is now nearly on a level with Parliament-street, yet at the head of the latter street the traffic is obliged to diverge right and left.

Every citizen, and particularly every trader and merchant who has to employ men and horses, has an experience of the hardship and loss that is entailed upon him yearly by the existence of the steep ascent of Cork Hill. There is some little hope that the Cork Hill improvement (or rather shall we say Castle-street improvement, for Cork Hill is likely to drop out of our street nomenclature) will take place before many years pass over. Even at a point between Essex and Carlisle Bridges where a level is nearly reached in the ground on each side of the river, no good thoroughfare exists.

Coming to our finest public thoroughfare, Sackville-street, nothing could be more irregular and winding than its connections on the opposite side of the river. Westmoreland-street first winds to the right, and then round College-green to the left; and the continued route through Grafton-street, Harcourt-street, to Portobello, is most wind-

ing and indirect. We have no good, direct, and wide thoroughfare from Dorset-street on the north to Rathmines on the south. On the north of Sackville-street, Cavendish-row gives direct access to Dorset-street, the north country artery of the city; but Cavendish-row, though sufficiently wide, is very steep in ascent.

When a new bridge is erected over the Liffey below Carlisle Bridge, we hope it and its approaches will be constructed in view of having a wide and direct thoroughfare from the northern borders of the city to the southern. We have no objection to streets that wind at long distances with a bold and not abrupt turn; if they are level, or nearly level, public comforts and other comforts will be attainable, as traffic will be facilitated and trade increased.

How far the viaduct principle could be adopted with profit in Dublin under the present circumstances of our city, we are not prepared to say. In Edinburgh, in the old city, much improvement has been carried out by constructing as it were roadways over roadways, the intersecting roadway at the lower level being bridged across, viaduct fashion. Recently in London the Holborn Valley improvement was carried out by the construction of a well-executed viaduct, whereby two very steep ascents on either side were transformed into a level roadway, and a continuous thoroughfare created. This was a costly but wonderful improvement. A large amount of house property had to be pulled down that had to be paid for, but the sites of these pulled-down houses were let afterwards for the original value multiplied over and over.

One great improvement always leads to another; and a great street improvement, wisely planned and carried out, will always lead to the increase and the advancement of trade in the vicinity of the improvement. We advocate, therefore, and strongly advise action in the direction of the widening, opening-up, and construction of direct thoroughfares through our city from north to south. With the carrying out of such works, improved drainage will also be effected, and public health and safety. The purification of the Liffey is desirable, but it is not less desirable and urgent to begin at once the improvement of our streets. With the improvement of our public thoroughfares, our street architecture will improve, for few men like to expend much money upon the ornamentation of buildings hid from view in narrow winding streets, or in proximity to tumble-down property, or in a bad and unhealthy neighbourhood.

THE LATE GEORGE A. GRIERSON,  
LL.D., M.R.I.A.

THE passing away from our midst of George Grierson deserves something more than a cursory notice. He was indeed an old citizen and a respected one; his name was long associated with the literary and printing annals of this city. We believe he was at his death the second oldest member of the Royal Irish Academy, and he was a gold medallist of Trinity College to boot. Although he became a member of the Bar at an early age, he did not follow the practice of his profession. With his brother, lately deceased, he held under patent the office of Queen's Printer in Ireland, and in that capacity he became, like his progenitors, widely known.

We believe we are correct in stating that the late George Grierson was a direct descendant of the George Grierson who first



obtained the patent of King's Printer through Lord Carteret, when Viceroy in Ireland early in the last century. It was to distinguish and reward the uncommon merit of Catherine Grierson, the young wife of George Grierson, that Lord Carteret procured the patent, and he had that lady's life inserted in it.

A word or two about this young and accomplished lady. She was a native of Kilkenny, well versed in Greek and Roman literature, and, it is also stated, in history, divinity, philosophy, and mathematics. It is remarked that a striking proof of her knowledge of the Latin tongue is to be seen in her Dublin edition of Tacitus to Lord Carteret, and that of Terence to his son, to whom she also addressed a Greek epigram. She wrote many poetical pieces in the English language, but very few of them are now known. This remarkable lady died at the early age of twenty-seven, in the year 1733, and, though little heard of now, is entitled to a conspicuous niche in the gallery of Irish female authors.

The immediate subject of our short notice, George Grierson, died at Dundrum on the 7th instant, at the advanced age of eighty-two years, possessing a clear and retentive mind until the last. For some years back he had retired from the active duties of his position, but still retaining in his retirement the good will of all who knew him or had dealings with him during his long life.

#### UNKNOWN DUBLIN.

BY THE "OLDEST INHABITANT."

*Edited by Mark Philip O'Flanagan, T.C.D.*

NORMAN KEYS—fifth visit.

THE "Oldest Inhabitant" continues:—

"Several of the old residents on the Lower Walk, of whom I gave you some particulars on our last visit, continued to reside even down to a few years ago, and their names are still fresh in the minds of our citizens. In the list which I now give from my note-book of residents in 1830, it will be seen that several have been already noticed as residents long years previous and subsequent to that date. Among the principal old firms in 1830 were: John Franklin, paper-stainer, at 13; William Cook Evans, of the Common Council, and member of the old Smiths' Guild; Richard Wright, hat manufacturer, member of the Common Council and of the Felt-makers' Guild; Michael Gilligan, M.D., member of the Royal College of Surgeons, London, at 2; James Wyon, ironmonger; John Woodhouse, button manufacturer, at 89, formerly 85, where he still carries on that trade, as well as other branches recently added. This house is in appearance the same as it was fifty years since, but the button trade has undergone various innovations since Mr. Woodhouse first sold that very useful appendage to our garments. Brass, iron, bone, wood, composite—all having rung their changes, but in my young days buttons were better made, and I think of more elaborate workmanship, than in these days. Court dress buttons, livery buttons, heraldic buttons, patrician buttons, plebeian buttons, religious buttons, and political buttons, and a thousand-and-one other kinds, have been manufactured and sold, doubtless, by Mr. Woodhouse, with profit to manufacturer and wearer. The history of buttons and their surroundings would form an interesting chapter or series of chapters. Do we not all remember, too, the hubbub that was made in Dublin between thirty and forty years since, when that novelty called 'Repeal buttons' set the authorities by the ears, and a right of way through the Lower Castle Yard was said to be refused to the wearer? John and William Wilson, slate merchants; J. Star, paper-stainer; William Sharkey, account-book manufacturer; Rubins and Co., booksellers, at 88; James Morris, paper-stainer; Reuben Hughes, paper manufacturer; Edward Hely, ditto, at 29; this family is still in the trade; and several others, whose names and addresses I have already given, and of whom, in connection with others, I will say more anon.

"On the Upper Key there lived at the period mentioned, and for some years subsequent, the majority of the following:—John Littledale, auctioneer, at 11; he was at one time a member of the Carpenters' Guild of the old Corporation,—of him more anon; D. Hughes and Co., licentiate, at 16; T. O. Regan, M.D., at 5; Bryan Kiernan, surgeon, at 5; William Stroker, public notary, at 17; John O'Neill, merchant, and consul for Spain, at 23; Samuel Smith, paper stainer, at 12; Joseph C. Scully, bookseller and stationer, at 35; John Robertson, seal cutter, at 21; William Kavanagh, gun maker, at 4, previously of Anderson's-court, Greek-street,—a family long in the gun trade of this city; Philip Hay, wholesale and retail perfumer; James and John Hamilton, merchants, at 14; Thomas Glover, watch and clock maker, at 1; Robert Frayne, cabinetmaker, at 13; Christopher Fleming, printseller, at 30. There were also a number of merchant tailors, gloves, hosiers, perfumers, and shoemakers, wine and tea merchants, of good standing on the Upper Walk in 1830, some who continued to reside there for several years afterwards.

"John Littledale, the auctioneer, is a man whose connection with the Upper Walk dates back many years. He was first established at 158 Capel-street early in the century, and through his long career knocked down some valuable properties—landed, literary, and artistic. In 1845 John Littledale was called upon to carry out the sale of the valuable collection of paintings, bronzes, china, statuary, &c., possessed by Francis Johnson, the architect, the founder and first president of the Royal Hibernian Academy. This sale, I believe, took place in consequence of the death of Mrs. Johnston. On the occasion, Mr. Littledale had a very good catalogue printed, somewhat unique in its way, and possessing some literary merit. This catalogue assumed a book or pamphlet form, and the descriptive matter was under the following headings:—'Introduction,' 'The Auctioneer to his Readers,' 'Marbles and Bronzes,' 'The Carvings in Ivory and Wood,' 'The Cabinets,' 'The China,' 'The Miscellaneous Property,' and 'The Conditions of the Sale.' This auction took place at Eccles-street, on the 24th of March, 1845, and the seventeen following days. The objects enumerated were 1440. The catalogue was printed by Webb and Chapman, of Great Brunswick-street, and copies of it are now scarce and much sought after by those interested in art collections. John Littledale still lives, and has reached the ripe age of 85, and, like myself, an old inhabitant, if not the 'Oldest.'

"John Kirkwood, law printer and stationer, though living in 1830 in East Arran-street, shortly afterwards moved to 18 Upper Key, and subsequently to 23 Lower Key, where he continued to reside till a few short years since. All the Kirkwoods are, I believe, now dead. William Kirkwood, the son of the former, was also a law printer, and stamp distributor at the Court of Common Pleas.

"Another old bookseller on the same walk, at 10, was Thomas Connolly. He was previously, I believe, a law wig-maker and stationer at 141 Abbey-street, but some time after 1830 he opened as bookseller by the river, and continued down to a few short years since. After his death his stock was auctioned off, at a 'tremendous sacrifice.' Ill-luck overtook two of his sons, and they were for a time imprisoned for an act of incendiarism; but of their actual guilt I cannot speak.

"Anthony Willis, goldsmith, was an old resident on the Upper Key. As far back as 1796 he was established as a refiner at 2; in 1818, as a silversmith, he was at 7; but in 1830 he was living as a goldsmith at 7 Essex-quay. Some curious gossip was current years ago about Anthony. It was said he was a celebrated melter in his day, and always kept a crucible ready for waifs and strays that found their way to his shop. He did not transmute the baser metals into the sterling

bullion, but transformed likenesses so that their own makers or owners would not recognise them.

"The noted John Donegan, the worthy goldsmith and watchmaker, formerly of Dame-street, kept a shop on this Key before he moved to the former place of business. John was a successful citizen, and much respected by the Roman Catholic hierarchy and clergy. On the occasion of MacManus lying in state at the Mechanics' Institute, he loaned some valuable crosses and other appendages for the proper carrying out of the political wake, and it is said that after the funeral they were never returned to him by the committee. John Donegan made a bold effort to establish watchmaking in Dublin, independent of foreign aid. He also assisted 'national' newspaper enterprise.

"William Corbet, law and mercantile printer, was an old resident on the Upper Key, and long connected with the printing trade of this city. In 1796 William Corbet was living at 57 Great Britain-street, in 1818 and for some years afterwards at 30 Little Strand-street, and before 1830 he was established at 8 on the Upper Key.

"I am informed that the celebrated D'Este, who was shot by O'Connell in the memorable duel, was for some time a wine merchant on the Lower Walk. He was, as is well known, a member of the old Corporation, and was of a very excitable temperament. His mother was an actress, who married again, and her son is the present Henry Grattan Guinness.

"John Cumming, the noted bookseller and publisher, is a name well remembered by many of our still living citizens. He came to Dublin early in the present century, and established himself as a bookseller at 16 (afterwards known as 17) on the Lower Key. In the adjoining house was Patrick Wogan in the same trade, who previously was long established at 23 'Old Bridge.' A partnership was entered into between the neighbours, and the business was carried on for some time under the name of 'Wogan and Cumming.' About this time also John and his brother James took up the business of the 'Hibernia Press Company' in Temple-lane, Dame-street, and continued the printing branch of the business as the 'Hibernia Press.' This partnership was dissolved about 1824, and the printing materials were taken over by a veteran and esteemed citizen, 'M. H. Gill, to the 'University Press' office. This gentleman, sir, is still in our midst, and is in his eighty-third year.

"There was a William Cumming, sir, a bookseller and bookbinder at 25 Great Britain-street, and subsequently at 52 Moore-street, up till 1834, but I believe he was no relative to John Cumming. The latter had a brother Charles, who went to America and settled in New York, where he acted as an agent for John in Dublin.

"John Cumming's career was at one time a bright and hopeful one; he did an extensive trade. His publications consisted chiefly of school books, and some editions of the classics. A pocket edition of 'Moore's Melodies' was issued by him, and had a large sale. Mr. Cumming was married to a daughter of William Lewis, auctioneer, of Anglesea-street. During the hey-day of his prosperity on the Key he lived in high style in a country house, and a carriage and pair gave evidence of the affluence that existed. The once busy and influential house came to grief in the 'Famine Period,' and shortly before this time the firm was known as Cumming and Ferguson: the latter emigrated to California.

"John Cumming's annual trade sales were signalised by considerable spirit and grandeur, and were always looked forward to with interest. One of the most successful of these gatherings of booksellers and other friends took place on the 11th of November, 1840, at the Commercial Buildings, Dame-street, where 'creature comforts' were provided. 'The Booksellers' Charter Song' was sung on the occasion. It was the composition of a brother bookseller and poet named Feagan,

who carried on his business for some years on the same Walk, in the shop at the corner of Lower Liffey-street. The song was printed by George Folds, St. Andrew-street, and it afterwards, in 1845, appeared in 'Timperley's Songs of the Press.' Copies of these verses are now very scarce, but I am indebted to a

veteran printer of long standing for one of the original printed copies, and I think they ought to see the light once more. The verses are very creditable, and the song, as will be seen, is to the air of 'The Fine Old English Gentleman.' Thus runs the old song in Roman and black letters:—

### The Booksellers' Charter Song, &c.

Air—"The Fine Old English Gentleman."

I'll sing the praise of our proud Trade, since *Fourteen sixty-nine*,  
The glorious freedom of the Press, which never lay supine;  
And call to mind the noble souls of other days long past,  
Whose actions glow like beacon lights, to guide us to the last:  
In solemn silence drink to those, all of the olden time.

Why not remember Britain's sons, who lent, by art and pen,  
Their aid, to snatch from Ignorance, worlds of unlettered men?  
Who smote that demon to the earth?—I'm sure you all can guess,  
It was renowned **Will Capton**, with his fine old wooden press:  
In silence drink his memory, his of the olden time.

**Wynken de Worde**, and **Pyson**, first printer to Harry Eight,  
**Letton**, **Julian Potary** and **Machlinia**, still more great;  
**Will Jaques**, and **Henry Pypwell**, first Bookseller of those times,  
And **Bretton**, who first imported books from Europe's lettered climes:  
In solemn silence drink to those, all of the olden time.

**Skott**, **Guttrep**, **Rastell**, **Rutler**, the **Copelands**, and old **Wyre**,  
**Redman**, **Banks**, and **Andrew**, who transfused the living fire;  
**Reynes**, **Wydele**, **Gibson**, **Grafton**, and the famed **Miles Coperdale**,  
Whose name shall stand recorded through England's woe or weal:  
In solemn silence drink to those, all of the olden time.

**Petit**, **Weyland**, **Hester**, **Lant**, **Middleton**, **Reynald**, **Wright**,  
**Woolf**, **Bowell**, **Lynde**, and **Porton**, who tore from darkness, light;  
And flung its rays o'er all the earth, which smote the power of hell,  
That now shall sleep for ever, 'neath old **Capton's** wooden knell:  
In solemn silence drink to those, a long and fond farewell.

Besides some thousand noble souls, whose names I can't recall,  
Yet shine in **Old Black Letter**, as the writing on the wall;  
But come we to a class of men, who shone beyond our seas,  
Who took from Death his sable lock, and melted down his keys,  
And opened wide the gates of life, for ages and for days.

**Faust**, **Guttemberg**, **Manutius**, **Aldus**, **Baynard**, **Froben** too,  
The **Elzevirs**, and **Stephens**, **Burman**, **Plantin**, and **Barbou**;  
And next, the **Bibliographers**, **Harless**, **Renouard**, **Marsh**, **De Bure**,  
**Harwood**, **Maittaire**, and **Panzar**, with all the rest, I'm sure  
You'll drink in solemn silence, those of the olden time.

And next, our great **Historians**, **Stowe**, **Grafton**, **Hollinshed**,  
The **Dramatists**, **Will Shakespear**, **Fletcher**, all the illustrious dead;  
Our **antiquarians**, Britain's stars, **Grose**, **Carter**, **Strutt** and **King**,  
With **Dugdale**, **Ware**, and **Weever**, of whom I love to sing:  
In solemn silence drink to those, all of the olden time.

Once more I claim your special grace, let every glass be drained,  
In sweet remembrance of the men who o'er our Press long reigned,  
First **Bensley**, **Boydell**, **Baskerville**, **Reeves**, **Foulis**, **Kincaid**, **Bowyer**,  
**George Faulkner**, **Chambers**, **Ewing**, **White**, with many hundreds more:  
You'll drink in solemn silence, these of the modern time.

If we have drunk with ecstasy, the memories of those gone,  
Come let us give a bumper to **Bentley**, **Murray**, **Bohn**,  
To **Longman**, **Cadell**, **Colburn**, to **Pickering**, **Priestly**, **Sharpe**,  
Who give to trade its varied tones as strings upon our harp:  
In rapture drink their honored healths, these of the present time.

And now with proud enthusiasm, we'll give the noble souls,  
Who guide the Press of Britain, whilst with lightning's speed it rolls,  
The pilots, **Boyd** and **Oliver**, **Black**, **Simpkins**, **Ballantyne**,  
Our **Dublin Folds**, and **Belfast Symms**, in sparkling champagne wine,  
With cheering rapture drink their healths, these of the present time.

I'm now at home—fill up each glass, we'll drink our noble selves,  
And first, **JOHN CUMMING's** honest health, long may he fill our shelves;  
**Smith**, **Curry**, **Tyrrell**, **Webb**, **Keene**, **Tims**, **Grant**, **Milliken**, and **Coyne**,  
And our own **SHARPE**, whose knock is felt, from London to the Boyne,  
With cheering rapture drink their healths, these of the present time.

"Some of the names mentioned deserve a passing notice—those at least of them associated with the printing, publishing, and book-selling trade of old and modern Dublin. Among the antiquaries, **Grose**, though not our countryman, illustrated to some extent the antiquities of Ireland, and, dying in 1791 in Dublin, he is buried in the village churchyard of Drumcondra, in the same grave with his bosom friend **James Gandon**, the architect, of whom this city is justly proud, though not her citizen, one of her great adopted architects.

"Sir **James Ware** is the name of a historian and antiquary who has strong claims upon our gratitude for his many literary services, and for the association with him of the celebrated **Dudley MacFirbis**, the Celtic chronologer and genealogist. **George Faulkner**, **Swift's** printer, was long associated with the Press of this country, both as a printer and publisher of books and newspapers. **George Ewing**, like **Faulkner**, belongs to the last century. He was a noted bookseller, and published many works.

"The name of **Chambers** mentioned, I think the poet alluded to the **Dublin John Chambers** instead of the **Edinburgh firm**; for, in 1840, the **Scotch house**, though since celebrated, was not very long established; however, I am open to correction. **John Chambers**, printer, lived during the era of the **Irish Parliament** at 5 **Abbey-street**, and the firm continued there for half a century. In 1818 the firm was known as **Chambers, Halligan**, and **Chambers**, printers and stationers, at 4 in the same street, and the house was known here down to some time after 1840 as **John Chambers**, account book manufacturer, printer, and stationer. The trade still continued in the family after the removal from **Abbey-street**, and houses under the name existed on the **Lower Key** at the corner of **Capel-street**, and afterwards in **Dame-street**, at which latter place the trade continues. I believe several books were printed at the old house in **Abbey-street**. Of the **Edinburgh Chambers** it is needless for me to say anything, as that firm for the last forty years and upwards is well known.

"The name of **White** (**Luke White**, I think the poet means) was long associated with the book trade of **Dublin** in the last century. He lived for several years at 86 **Dame-street**, where he made a fortune, though his early career was passed in struggling obscurity. He was popularly dubbed the '**Flying Stationer**,' as he originally, I believe, hawked books through the country. Long before **Luke White's** death he obtained honours, and died in possession of a large estate. Some of his representatives still live, and one of them has, I believe, represented a southern county in **Parliament**. Speaking of the name of **White**, there was another of the name in the printing and book-selling trade of this city for several years. **R. M. White**, printer, bookseller, and stationer, lived as far back as 1818 at 85 **Great Britain-street**. Whether he was any relation to the former I do not now remember.

"Of **John Folds**, the printer and publisher of the **Dublin Penny Journal** and other journals and newspapers, I have told you on some of our visits to another locality months since, as also of his brother **George** and their father, the venerable **William Folds**, who was established in the printing and publishing business in **Dublin** during the era of the **Irish Parliament**, and continued in the trade for thirty years in the present century, till succeeded by his sons.

"**Simms** was a **Belfast** publisher, and also subsequently established a house in **London**. He issued several works, and, in conjunction with **M'Intyre**, published some of the first cheap and popular editions of the works of our **Irish and English novelists**. **Smith**, of the firm of **Hodges and Smith** (and afterwards **Hodges and Foster**), in **Grafton-street**, is a name long known in connection with the publishing and book-selling trade of this city. **William Curry, jun.**, **Sackville-street**, issued several works, and was the publisher of the **Dublin University Magazine** for several years, and also the works of some of our popular **Irish novelists and antiquarian writers**.

"**Tyrrell**, bookseller, was long established in **Sackville-street**; and so was **Webb**, who died recently at a very advanced age, being in the trade in **Sackville-street** upwards of half a century. Both **Tyrrell** and **Webb** issued works as well as sold books. **Martin Keene**, bookseller, was for many years in **College-green**, and the house was a noted one. **R. M. Tims** was a noted bookseller for some years in **Grafton-street**. **Grant**, **Bolton**, and **Co.**, booksellers, lived in **Dame-street**. **Richard Milliken and Son**, booksellers to his majesty and to the **Dublin University**, were long years in trade in **Grafton-street**. They published several works. **Richard Coyne**, Catholic bookseller and publisher, a veteran in the trade, lived for half a century in **Capel-street**. He was bookseller by appointment to the **College of Maynooth**.

"Our own **Sharpe**, whose knock is felt from **London** to the **Boyne**,

was the notable **Charles Sharpe**, or **Sharp**, the book auctioneer, of 85 **Anglesea-street**, who knocked down in his day very many valuable libraries, and scattered many a fine collection of rare works to the cardinal points—books which are since drifting over the world.

"**Mr. Feagan**, or **Fagan**, besides being the author of the above '**Charter Song**,' wrote many pieces in the **Dublin periodicals**. The house known formerly as 89, **Feagan's** bookshop, at the corner of **Liffey-street**, was previously in occupation of **Thomas Delany**, bookseller. **Feagan** became a tenant to **Delany** in 1838, and continued the book-selling business here for several years. He afterwards went to **Liverpool**, where he and some of his family met untimely deaths from burning.

"I have not yet told you all, sir, that might be told of the old residents and traders on both **Keys**; but I must conclude at this point for the present."

This ended our fifth visit to **Norman Keys**, to which we may be enabled to add a sequel, through the assistance of our friend the "**Oldest Inhabitant**."

### THE LITERATURE OF GOTHIC ARCHITECTURE IN IRELAND.\*

THE small dimensions of our native churches—all those which are believed to have been built previous to the period of the middle of the twelfth century—have often been commented upon by archæologists and architectural writers. Of course, it is quite possible that for some considerable time later churches of small dimensions were continued to be erected, notwithstanding the new influences brought to bear in construction by the monastic orders, more particularly the Cistercians. Mr. Brash thinks that its probable Cormac's Chapel was the last church of any importance erected in Ireland, whose arrangement, construction, and details were in accordance with the traditions of our early native architecture—that is, up to about the period of 1184, our churches, nearly as a whole, were of very limited dimensions. This view is, indeed, confirmed very fully by many existing examples.

As our papers on the "Literature of Gothic Architecture in Ireland" may possibly be referred to by some writers in years to come, in absence of many of the numerous authorities or works upon the subject it has passed under review, it may be useful to cite a short list of the principal examples of our native churches of small dimensions, whose architecture was indigenous, as it were, to the island, and which were erected previous to the period of Cistercian influences. The stone-roofed church at Killaloe is 29 ft. by 17 ft. in clear of walls. The nave of the principal church of Inniscarra, 30 ft. 6 in. by 20 ft.; that of Nun's Church, at Clonmacnoise, 36 ft. by 19 ft.; Temple Finghin, 28 ft. 10 in. by 14 ft. 6 in.; the Ivy Church, at Glendalough, 32 ft. by 19 ft. 9 in.; the Refectory Church, 29 ft. by 17 ft.; St. Saviour's Church, 41 ft. by 20 ft. 3 in.; and the Trinity Church, 29 ft. 6 in. by 17 ft. 6 in. The cathedral is of larger size, but as it doubtless underwent several alterations, it would be difficult to say what were its original dimensions. The same may be written of the Cathedral at Clonmacnoise. St. Columb, at Kells, is 19 ft. by 15 ft. 5 in. The original church at Tomgraney was 38 ft. by 20 ft. 6 in. in clear of the walls, but it was lengthened by an addition of 87 ft. These measurements are given on the authority of Mr. Brash, who adds that the cathedrals at Ardmore, Scattery, and Kilmacduagh have been ancient churches, enlarged in the thirteenth and fourteenth centuries. It will be seen from the above examples of our native churches that they seldom exceeded 40 ft. by 20 ft. clear of the walls, the greater number of them being much under these dimensions.

The oratories, already noticed in our papers, and the primitive churches could, from their very small size, contain little or no congregation, and must have been used merely for preserving the altar, sacred utensils, vestments, books, &c.; and, when a congregation was present, it must have been ministered to while standing without. We have ourselves stood within more than one of these primitive churches, and, from their diminutive size, we could come to no other conclusion. As houses of prayer and worship, they may have been used by a few holy men or missionaries; but the congregation or worshippers could not be accommodated within, except they could be counted by the fingers' ends. It must be admitted, however, when the early oratories and primitive churches were built, the converts in each new district must have been very sparse; and it is quite possible also that the congregation, though preached to while standing without, might have been allowed to pass in singly or by twos and threes to the sacraments or to other rites, passing out again to make way for others in turn. Be that as it may, the fact remains that the churches in the majority of instances were exceedingly small. In the later churches erected before the twelfth century their comparatively small size is still to be noticed, in

connection with the fact that they were not provided with either sedilia, piscina, or credence—adjuncts generally considered necessary in the mediæval period.

Mr. Brash cannot account for the small size of our native churches up to the middle of the twelfth century on any other grounds, save the strong predilections which our Gaedhelic architects had for that national covering, the stone roof, and which they certainly appear to have held to with the greatest tenacity. Let us quote our author on this point:—"In the construction of Cormac's Chapel they seem to have strained their resources to the utmost; and so nicely have they balanced the weight of the roofing against the scantling and resistance of the walls, that there is no appearance of thrust or settlement whatever. But beyond a span of 20 ft. or 21 ft. they evidently could not go, without an enormous waste of labour and materials; consequently, when larger churches were required, on the introduction of the foreign religious orders, which in the middle of the twelfth century began to multiply in Ireland, the old system of roof-construction had to be abandoned."

A great and decided improvement certainly took place in Irish ecclesiastical architecture in the middle and towards the close of the twelfth century, and the introduction of the Cistercian Order into Ireland contributed powerfully to this improvement. Whether the Cistercians were their own architects, or to what extent they were indebted to architectural guidance outside their own ranks, it is perhaps useless to inquire now,—their churches are characteristic, and sufficient grand examples remain to entitle the order to all the merit that has been claimed in their behalf.

Mr. Brash gives an account of the life and mission of St. Malachy O'Morgair, our eminent churchman, born in Armagh about 1098, and of his introduction of the Cistercian Order into Ireland, through the influence of St. Bernard at Clairvaux; but we shall pass over these strictly religious details. A list of Cistercian houses, with the dates of their foundation and the names of their founders, will be found in Harris's edition of *Ware's Antiquities*. This list is reproduced in Mr. Brash's volume; and the reader, in the absence of both these sources, will find information on the same subject in Archdall's *Monasticon Hibernicum*, and further details in the new edition of the latter work now publishing. The Cistercian Order was the first foreign one introduced into this country, and with its establishment a revolution was effected in our ecclesiastical architecture.

Speaking of the Cistercian edifices, Mr. Brash observes—that "Many of the Cistercian churches exhibit Romanesque work, principally confined to the nave and aisles of the respective buildings; the chancel and side chapels being usually First Pointed, the towers generally Second or Third Pointed. It is quite evident that, from the struggling circumstances of the order in Ireland at the time of their introduction, they were generally unable to erect a complete church at once, as they were planned upon a much grander scale than had been hitherto attempted in Ireland. Hence we find the naves at Boyle and Monaster Nenagh exhibiting Romanesque details, while the chancels and chapels are Early Pointed, or have even Second Pointed insertions. At Jerpoint traces of a Romanesque triplet are to be seen in the chancel, though a Second Pointed window has been inserted, proving unmistakably that in this case the entire church had been erected within the twelfth century. Holycross was rebuilt in the fourteenth century; every trace of the original Romanesque church has disappeared with the exception of one round-headed doorway, having jambshafts with carved caps, which has been preserved and built into a portion of the present church. There is no doubt that these edifices were planned by the Gaulish monks from Clairvaux; and we have evidence that at least one person skilled in building was sent by St. Bernard to St. Malachy, in the follow-

ing passage from a letter written by the former to the latter."

The passage quoted by Mr. Brash, which we here give, is taken from O'Hanlon's *Life of St. Malachy O'Morgair*:—"We send back to you, your dearly beloved son and ours, Christian, as fully instructed as was possible, in those rules which regard our Order, hoping, moreover, that he will henceforth prove solicitous, regarding their observance. . . . Our dearly beloved brother, Robert, like a truly obedient son, hath also complied with our wishes, on this occasion. It will be your province to assist him, that he may be able to promote the interest of your family, both by building, and in all other necessary works."

The first Cistercian house founded is believed with some proof to be that at Mellifont. Archdall's *Monasticon* may be consulted as to some of its annals. Mr. Brash gives a description of existing remains which are now few. The reader may be referred to other notices of the buildings at Mellifont to be found: *Louthiana*, by Mr. James Wright, published in 1758; the *Antiquities of Ireland*, published under the name of Grose, in 1798, seven years after that antiquary's death, and which, there is good reason for thinking, was prepared or partly prepared by Ledwich; and the first volume of the *Dublin Penny Journal*. The description of the remains at Mellifont, with a view of the interior of the "Chapel of St. Bernard," in the last-named publication, was written and sketched by Mr. Robert Armstrong, an humble, but a very talented antiquary, of whose abilities the late George Petrie, O'Donovan, and others, had a high opinion. He was originally a journeyman house painter for some time at Ranelagh, and afterwards a parish schoolmaster at Raheny; but, unlike many of his order, Armstrong, instead of drinking and sketching with his fingers dipped in beer on tap-room tables, spent his spare hours in visiting and sketching the remains of our national monuments in Dublin, Louth, and other border counties. We quite agree with Mr. Brash that poor Armstrong's accurate description has been frequently pilfered from by succeeding writers, without the slightest acknowledgment.

The portion of the remains at Mellifont called a chapter-house, and by others a baptistery, the latter being its proper appellation, is described at length by Mr. Brash. We shall pass over the details, and only take into consideration what our author says of materials and workmanship:—"The dressings and ornamental portions are very finely cut; the material a pale buff-coloured freestone. It has been stated that this material is not to be found in the district, and that it was imported from France. The nearest native freestone is to be found in the northern part of the adjoining county of Meath; whether it is of the same geological character as that used at Mellifont, I have had no opportunity of judging. It is not at all surprising that the foreign monks sent by St. Bernard to assist in the erection of this abbey should have preferred such a material as they were accustomed to see used in their own country; and there is no doubt that the importation of the material from Caen, or other parts in Normandy, would not be attended with more cost and difficulty than the transportation of the same quantity from the Meath quarries, at a period when all heavy goods were carried on horses' backs, and roads few and far between."

We incline to the opinion that the buff-coloured freestone was procured from either Meath or Down, for there is freestone in either county which time and age will turn a buff or mere yellow colour. In saying this we are free to admit that freestone may have often been imported from Normandy, and, indeed, we believe that Caen stone was in several instances imported for our ecclesiastical edifices.

We do not quite agree with Mr. Brash concerning the difficulty of transporting from native quarries as against that of importation.

\* See ante.



If foreign freestone were determined upon for use in any of the inland churches the same difficulty would be presented of carrying it upon horses' backs on bad roads after its landing as in that where it was procured at home. In churches and abbeys near to the sea-board there might be an advantage in importing foreign stone when no native quarry was near yielding stone of the quality required.

In allusion to the baptistery at Mellifont, Mr. Brash remarks:—"The detached baptistery is specially an Italian feature, and must have been introduced at a very early period; it marks the importance attached to this rite by the early church. These structures were usually either octagonal or circular on plan, ranging from 40 ft. to 100 ft. in diameter, containing an internal arcade of piers, or pillars, crowned by a horizontal architrave, or cornice, as in the early examples, or supporting a series of arches, as in the latter ones; the central space was crowned by a dome, while the surrounding aisle was usually vaulted. Though generally detached, they were sometimes connected with the church by a vestibule or covered passage."

Mr. Brash proceeds, and mentions some foreign baptisteries and their features, some of the early round chambers being, we are told converted into baptisteries. The one at Mellifont, our author concludes, "though not in such a scale of grandeur as those above described, being but 30 ft. in diameter at and out, was yet a building of considerable merit, designed in a pure taste, and executed of excellent workmanship and material. The vandal act which destroyed this beautiful structure is deeply to be regretted. Let us hope that the fragment which remains of the only detached baptistery in the British Isles will be preserved from further mutilation."

What is commonly called the "Chapel of St Bernard," a richly-furnished apartment, is not an ecclesiastical but a domestic structure, as over it, writes Mr. Brash, "is an apartment with a fireplace and other secular features. It is groined, and shows some very good fourteenth-century detail, with Irish peculiarities."

In our next paper we will continue our notice of some other Cistercian buildings, with a view to special features in connection with their design, materials, workmanship, and surroundings.

## HANDICRAFT AND HANDICRAFT TOOLS.

### HAMMERS.

(Concluded from page 326.)

THE adze seems to have been the edge tool most generally in use. This tool differs from what we call axes or adzes. It was very much smaller, and in all respects, a one, and not as now-a-days, a two-handed tool. The name seems to be applied to either those with the edge of the blade in the plane of the handle or those in which the edge is at right angle to this plane. Further, there is this peculiarity: all, or nearly all the adzes in use 3,000 years ago, had the handles placed at an acute angle with the plane of the material constituting the cutting edge of the adze. These handles are fastened on with thongs of either animal or vegetable fibre, probably bound on when wet, which in drying contracted, and held the metal firmly to the stock or handle. If you look on the diagrams in the room at the posture assumed by the Egyptian artisans, especially the class who used adzes, no words of mine are requisite to put before you the suitability of the tool to the work being executed, and the mode of using it. Even at the present day travellers inform us that the adze is used by cabinetmakers in Egypt exactly as it was in the days of which we are speaking. The handles of these bronze tools are chiefly of the woods of the country (*acacia* or *tamarisk*.)

As to the power of these bronze adzes. The Egyptians had no planes as we have,

their work had to be finished, so far as cutting tools are concerned, with adzes, and very excellent and highly finished work it is. Occasionally we see in the work of the modern wheelwright and carriage-builder well-formed and finished articles, even when the tool has not been followed by that destroyer of handicraft skill, sand-paper. When, however, the work seemed to require a finer surface than the adze could give, it was treated with two tools which did the work of our chisels and planes. These tools were, one as though it were the bronze of the adze separated from its handle and used either as a chisel pushed before the workman, or as a scraper. From the position of the man (see fig. 8, p. 42, vol. 2, Wilkinson's "Ancient Egyptians," and also vol. 3, p. 170) it may most reasonably be inferred that the former was the practice. Even this was followed by a tool which to some extent resembled in form a plane, and yet discharged a purpose very similar to what is now required when a workman covers a piece of cork with sand-paper and uses it for final polishing. This tool deserves further notice, and, although some of the remarks may be inferential only, yet there are such instructive conclusions that even the inferential character may be permitted. In the tools used by the Egyptian fullers for smoothing cloth is one of this form. Nothing is more probable than that the carpenters or cabinet-makers adopted this type of tool as the one to be used by them, making it, of course, in such stone as might be most suitable. If, now, this be the case, then we can trace without any far-fetched or improbable supposition how that beautiful plane referred to in the first lecture as brought by Sir Edward Belcher from Icy Cape was designed, for it is neither more nor less than the fuller's cloth-cleaner from Egypt.

It must not be considered that because no reference has yet been made to hammers in connection with chisels that the benefits of percussion over and above thrust were not known. Such is not the case. Hammer-struck chisels were very general. The mallet itself is in both form and material a very old tool. Those figured on the tombs of Egypt might have been drawn from our stonemason's mallet; they are so like them. Of those exhibited in the case in the British Museum, it may be said that were they taken and used by the stonemasons at the Law Courts they would hardly attract attention, except that a master or foreman would complain that however skilled the mason might be with the edge of his chisel, he was very negligent about the head of the same chisel. The Egyptian mallets—hammers we may call them—are indented in a deep circular ring, as though used all round against the very jagged head of a metal chisel. The photographs of these mallets are hung on the walls of the room.

Even when necessity (the mother of invention) has suggested these tools, there remains this curious anomaly—why should our geological ancestors have laboured and acquired the art of drilling in such perfection? Strange at first sight seem those large and well-formed holes in stone. To make these holes does not apparently meet any social wants which men in a primitive state were likely even to imagine, let alone gratify. There was, however, one want which perhaps mankind more than any other group of animals required, that was the artificial production of fire. It is a question whether any race of men have ever been found to whom some means or other of producing fire was not known. The ingenuity of a contrivance in primitive times for this purpose is now, and will be as long as the world lasts, an interesting question to all who care for handicraft tools, and therefore, although to be too briefly handled, it must not be omitted.

The plan to which the greatest antiquity attaches was probably that which has been occasionally met with in New Zealand and the Sandwich Islands. It consists in rubbing a blunt pointed stick along a groove of

its own making in a piece of light and very dry wood. Thus fire was produced. Long, long before the Egyptian tombs were formed, this plan, although still existing, had given way amongst nearly all people to a process of drilling; indeed, it would seem that the necessity for producing fire originated the drill, a tool second only in antiquity to the hammer, and one which had evidently been used in forming the holes of some of the hammers and needles of the stone age.

Captain Cook describes one among the native tribes of Australia. He says, they take two pieces of dry, soft wood—one is a stick about eight or nine inches long, the other piece is flat; the stick they shape with an obtuse point, and pressing it upon the other, turn it nimbly by holding it between both their hands as we do a chocolate mill, moving the hands downwards to increase the pressure. Thus, they get fire in less than two minutes, and increase the smallest spark with great speed and dexterity.

The geographical range of this simple "fire drill" is great. It is in use in Australia and Tasmania, Sumatra, and the Carolines. It has been found in Northern India, and amongst some of the oldest tribes of Southern India; it is in the retired districts still employed by the wild Veddahs of Ceylon. It has prevailed in South and West Africa and the Canary Isles. It has also been found among the Esquimaux and Indian tribes in North America. To twist a cord or thong round the stick, and whilst one person presses on the top and two have hold of the respective ends of the cord, and by a see-saw motion cause the stick to rotate, such was an early advance in the fire-producing drill. It is said that in modern India, in some retired districts, butter churns are now thus worked, and that thus the Brahmins produce the sacred fire.

To progress from a plan which required three persons to unite in order to produce fire, or drill holes to schemes which dispensed with one, or even two, was likely to commend itself. Hence, whilst the fire-drill is still a universal tool, the modes of rotating the drill, and producing the requisite pressure, are various.

To dispense with one of those who pulled the thong to cause rotation, seems to have been accomplished by the introduction of the bow, which gave sufficient tension to the string to make the drill spindle rotate.

How soon it was perceived that the pressure thus effected by a stone and the hand might be accomplished by a different arrangement of the bow cannot now be ascertained. Sure it is that even at the present time the Esquimaux have dispensed with the mode of producing pressure here illustrated, and adopted a novel substitute. A piece of hard wood is formed to the curve of the mouth, covering it as a respirator does, and having in addition a projecting back piece which is held between the teeth; into the front of this wood one end of the drill spindle is inserted.

Thus arranged, the driller's head was over the hole, and his eyes directed to the drill-point. In all respects the attitude for a drilling instrument was a good one. The tool could be watched and its direction preserved. Upon the muscles of the neck alone, acting through the teeth and gums, devolved the whole of the pressure. Such drilling mouth-pieces are in the British Museum.

The contrivance for drilling by the pump-drill is one of great antiquity and world-wide celebrity. It is well known and used in the East, and in some South Sea Islands it is used, being pointed with a piece of hard stone, or horn, or shell, instead of steel. It is employed in Navigator's Island, in the South Pacific, for drilling the fish-hooks made of shell, for which it is well adapted. This pump-drill is still to be found in the London tool shops. It is the form of drill apparatus generally handled by those who repair broken china or glass. The absence of a guide, or pressure, or steadying centre for the upper end allows a freedom of play at the drill, which seems to be a recommen-

dition in the class of work now referred to, and varieties in pressure and speed are within easy compass.

Ingenuity, or a disposition to alter and so perhaps improve upon existing arrangements, is as natural to the human mind, as the taking of food or the breathing of air. The hand-drilling as described seems to have been improved upon in the hill country, on the west of central South America. There the practice is to take an elastic stick about eighteen inches long, and the man presses one end against a plate on his breast, and the other, which is blunt pointed, he presses in a hole in a piece of wood, and then rapidly turns the curved part and so obtains fire. Whether this suggested the carpenter's brace, or the carpenter's brace suggested this, those who are competent must decide.

Wallace, in his account of the Malay Archipelago, describes a plan of drilling which he found in operation at Sombork, an island to the west of Java.

Mr. Wallace writes, that one of the princes showed him the guns made by native workmen; the barrels were twisted, well finished, and almost six feet long, the stock ornamented with silver and gold. The workshop and tools were shown. The former, an open shed with two mud forges—the bellows, bamboo cylinders with feather pistons. Mr. Wallace asked how the guns were bored; he was told "with a basket of stones," and taken to see one.

Through the bamboo basket was stuck a pole about three feet long. The bottom of the pole has an iron ring and a hole, in which four cornered borers of hardened iron can be fitted. The barrel to be bored is buried upright in the ground. The shaft is held by a cross-piece of bamboo with a hole in it, and the basket is filled with stones to get the required weight. Two boys turn the bamboo. The barrels are made in pieces about thirteen inches long, and are first bored small, and then welded together upon a straight iron rod. The whole is afterwards worked by borers of increasing size, and in three days the boring is finished. The tools from first to last were hardly sufficient for an English blacksmith to make a horse-shoe.

There is, however, an illustration of a process of drilling which may (if true) aid in establishing the position that the drilling of holes by the twirling of a hard or hot substance must in ages long past have been of quite as universal use as it is at this time. The day is a little after the period when the Egyptian figures and drawings introduce us to the mode in which it was then practised, but prior to the dates of Herculaneum and Pompeii.

Homer (who wrote about 950 B.C.) is describing the treatment to which Ulysses subjected the one-eyed Cyclops. The story may be briefly told: Ulysses, wandering after the siege of Troy, which siege took place about 1200 B.C. (1875 + 1200), 8,075 years ago, visits the cave of a one-eyed Cyclops. The giant is a cannibal, murdering and eating some of Ulysses' companions. They cannot escape out of the cave, because a stone was placed before the outlet, and it was far larger than they could move, and Ulysses suggests a plan by which they shall let the giant retain his strength, and yet lose his power to harm them. He takes a stick, when the giant was out, and Pope translates—

"The narrower end I sharpen'd to a spire,  
Whose point we harden'd with the force of fire."  
*Odyssey, Book 9, line 386.*

Having watched until the Cyclops returned, and was asleep, Homer continues (as Pope translates) that Ulysses and his companions take action thus:—

"The stake now glowed beneath the burning bed,  
(Green as it was), and sparkled fiery red;  
Then forth the vengeful instrument I bring;  
With beating hearts my fellows form a ring.  
Urged by some present god they swift let fall  
The pointed torment on his visual ball.  
Myself above them rising from the ground,  
Guide the sharp stake and twirl it round and round,  
As when a shipwright stands his workmen o'er,  
Who ply the wimble, some large beam to bore;  
Urged on all hands, it nimbly spins about,  
The grain deep piercing, till it scoops it out;  
In his broad eye so twirls the fiery wood;  
From the pierc'd pupil spouts the boiling blood,

And as when arm'd with temper in the ford  
The keen-edg'd pole-axe or the shining sword,  
The red-hot metal hisses in the lake,  
Thus in his eyeball hissed the plunging stake."  
*Odyssey, Book 9, line 449, &c.*

This account by Homer of a drilling operation seems to establish that in his day the process of drilling for many different purposes was in general practice.

From the sculptures on the Arundelian marbles at Oxford, which are said to refer to ancient history from 1582 to 855 B.C., it would appear that iron was known 1370 B.C. (i.e., 188 years before the Trojan war). Bearing this fact in mind, it seems to be a well-warranted assumption that when Homer devised this method for blinding Polyphemus he was familiar with the process now adopted for tempering steel. If the quotation from Pope is to be relied on, as expressing Homer's views, the last four lines very clearly express the mode we adopt in order to adjust a combination of hardness and toughness in steel to any purpose required.

## CIVIC LYRICS.

No. XCIX.

### THE TRIUMPH OF TRUTH.

"An honest man, the noblest work of God."—Pope.

Honest mind and honest action,  
With a trust in God on high;  
Men through these may earn detraction,  
Yet the world they may defy,  
For their foes will be a faction,  
And their cause a monster lie.

Who has lived that pleased the many?  
Who has died that had no foe?  
Has there lived, or is there any  
Living soul who struck no blow?  
No, not even the slave or sany  
Trod on worm will turn I trow.

Oh, our lives have their great uses,  
Not to serve ourselves alone,  
But to root out gross abuses,  
Eating into flesh and bone.  
Fraud is built on false excuses—  
Truth has a foundation stone!

No. C.

### WORK AND REST.

"All's well that ends well."—Shakespeare.

I've chaunted of public rights and wrongs,  
And Public Health, for years;  
Reforms have been the theme of my songs—  
That some are gained, appears.  
But many a public want is still  
Needful, as sun and rain.  
Ere won, must be fought for with a will  
ONE HUNDRED TIMES AGAIN!

Poets, like Prophets, will cease to live;  
But all their words won't die.  
The old to the young the way must give,  
That they their hands may try.  
With the Old Year the pen down I lay,  
And rest awhile my brain;  
Like erst if I sing not, still I may  
ONE HUNDRED TIMES AGAIN!

CIVIS.

[Our co-labourer "Civis" concludes his "Civic Lyrics," at least as a series, with our present volume. He may, however, be heard of again, and in more forms than one. During the one hundred times that he dealt with public questions and abuses, either in advocacy of public rights or in condemnation of public wrongs, he must have, so to speak, stood upon the corns of some thin-skinned public or would-be public characters. His object, we must say, has never been to personally offend, but to publicly reform. His verses were always written *currente calamo*—"on the spur of the moment,"—and depth and finish could not be expected in them all. Notwithstanding, we believe that several of them possess a freshness and vigour too often absent from more laboured productions. It may not be amiss to add, that "Civis," under other *nom de plumes*, has written verses of a far higher order on various subjects during the last twenty years and upwards. His prose contributions, too, are very varied, and very many of both have appeared in Irish, English, and Scotch newspapers and leading literary and professional journals during the period mentioned. "Civis" is a native of

Dublin, and he has done not a little in illustration of her history and antiquities.—Ed. I. B.]

## ABOUT "THE HON. IRISH SOCIETY."

### FOURTH AND CONCLUDING ARTICLE.

It was our intention in this article to give some extracts from the Reports of the Royal Commissions appointed to enquire into the Municipal Corporations of England and Wales, and from the Report of the Commission appointed in reference to Irish Municipal Corporations. We also intended to quote at some length the Report of the Royal Commission appointed in the year 1854 to enquire into the Condition of the affairs of the Corporation of London, as far as related to the "Irish Society."

We are pleased to see that we are anticipated in these matters by the issue of a pamphlet from the office of our contemporary the *Derry Journal*. This pamphlet also includes a statement of the management and expenditure of the "Irish Society," as contained in the speech recently delivered by Mr. Chas. E. Lewis, the Parliamentary representative of the City of Derry.

We can commend this pamphlet as a fair and honest statement of facts put before the public in a strictly impartial manner. We should add that, appended to the *brochure* will be found the "Memorial of the Citizens of Londonderry," addressed to the members of Parliament for the City of Derry and for the County of Derry; and also the "Memorial of the Inhabitants of the Borough of Coleraine." About 270 names are attached to the former memorial and upwards of 120 to the latter, in both of which are included many of the most influential representative public and professional names, with merchants, manufacturers, traders, &c.

It is scarcely necessary to give extracts from the reports of the commissions alluded to above: each and all conclusively show the anomalous position of the "Irish Society." The first commission spoke of the singular control exercised by the society over the municipal authorities of Londonderry and Coleraine, and it clearly and bluntly said that "We do not know of any pretext or argument for continuing this municipal supremacy of the Irish Society." It also spoke of the connection of the "Irish Society" with the Corporation of London as a very anomalous one.

The report of the Irish commission is a more circumstantial and comprehensive one, for it gives an epitome of the origin and career of the "Irish Society," embracing many of the facts already stated by us in previous articles. This report also speaks of the "strong feeling of dissatisfaction in Londonderry," created by the existence of the "Irish Society." The Irish commissioners as well as the English experienced great difficulty in obtaining any information from the officers of the "Irish Society"; in fact the needful information was denied to the commissioners, and there is too much reason to suspect that many documents and records were stowed away or burned. The secretary at the time stated in evidence that the "Irish Society" derived an income of nearly £7,000 per annum from Derry and Coleraine, and that their yearly expenditure there for public purposes, including charities, was nearly £500.

The last Royal Commission on the Corporation of London in 1854, as far as it related to the "Irish Society," though somewhat important, was not high as satisfactory as it might or should have been. It commenced also by giving some account of the origin of the "Irish Society," but on very doubtful authority. However, we are not dependent on this or other commissions for a clear statement of the rise and career of the society. This aside, the report of the commission shows that it was fully admitted by the governors of the "Irish Society" that the original objects for which it was created have long been satisfied. Its revenues, says the commission of 1854, "are at present

appropriated partly to the expenses of management, partly in grants for the municipal institutions of Londonderry, and partly in grants to various charitable and educational institutions connected with the district around Londonderry and Coleraine. It has become in substance a large charitable endowment for the north of Ireland, managed by an absent committee in London. Without discussing in detail the questions between the 'Irish Society' and its Irish tenants and dependents which have been raised before us, we think that enough has appeared from the evidence on both sides to show that their relations cannot be regarded as satisfactory." The commissioners expressed their opinion of the great abuses that existed for a long time in the administration of this trust property, pointing out that the expenses of management went far beyond the necessary costs attendant on a distant executive.

From 1854 to the present upwards of twenty years have passed, and there is no improvement visible in the management of the funds or administration of the property. The commission of 1854 quotes the expenses in the three periods of ten years from 1818 to 1847. In these thirty years the cost of management amounted to more than half the expenditure that was not of a permanent nature. The total cost of management for that thirty years was £183,912, the total expenditure, less permanent payments, being £219,898. From this it was to be seen, as the commissioners stated it, that the expenditure of a permanent nature "is nearly £1,100 a-year; so that, in order to obtain the total expenditure for the thirty years, it is necessary to add a sum of about £33,000." Again, the report of the commission of 1854 shows that the expense of management and the total expenditure (less permanent payments) for seven years, from February, 1847, to the same month in 1853, was £21,161 in the first instance, and £50,292 in the latter. The expenses of management, it will be seen, in these seven years amounted to less than half the expenditure which was not of a permanent nature.

After considering the questions which it was incumbent for them to consider—first, the objects of the "Irish Society," and, secondly, its management,—the commissioners came unhesitatingly to the conclusion, that the cure for the abuse lay in carrying out at once the following "recommendation:—*That the 'Irish Society' be dissolved; that its trusts be declared by act of Parliament; and that new trustees be appointed by the Lord Chancellor of Ireland.*" Why upwards of twenty years should be allowed to pass over without any decided step being taken to carry out this recommendation, may seem strange to many in this country. It does not, however, appear so strange to those like ourselves who have had some City of London experience, and who were enabled to obtain an odd glance behind the scenes, and to observe without and within city circles how influences were worked.

The late Mr. Maguire, M.P., as we stated already, made an effort towards leading to a reform of abuses connected with the "Irish Society," but for want of united support, his action resulted in nothing satisfactory. In 1866 Mr. Tristram Kennedy obtained some useful returns of the expenses of the society for the previous twenty years, which showed how large had been the expenses of the trustees of the society, and how well they paid themselves for coming hither yearly. They seemed to be oblivious to the fact that trustees paying themselves in the manner they did, was in direct opposition to the law.

We feel that we ought not to close this article without including in it the figures obtained by Mr. Lewis which brings down the items to 1874. We quote from Mr. Lewis's recent speech:—

"During the last session of Parliament I obtained a return to continue the figures to 1874. These returns have not yet been made; but, through the great kindness of Sir Sydney Waterlow, I have been enabled to find from their own documents their expenses for the last five years. And you will see

how evils grow. Just like a house on fire, things going on increasing and increasing. Here are two or three illustrations of it: In the twenty years from 1845 to 1864 the Irish Society have paid themselves for their services £4,357, or, in other words, £210 a-year on an average. They were very moderate amounts, the lowest being £187, the highest being £353, and the average £210. In 1870, they paid as fees to members £591; in 1871, for the same purpose, £558; in 1872, £579; in 1873, £689; and in 1874, £761. That is the way in which these things increase. Deputation expenses during the twenty years cannot be placed on an average, as I am not able to give you exact figures for that time; but I will tell you what they were for the last five years. In the year 1870 the deputation expenses amounted to £578; in 1871, £722; in 1872, £821; in 1873, £894; in 1874, £975. Now all this is your money, which ought to have gone to the improvement of your city. During five years there was paid in fees to members a sum of £3,178; deputation expenses for the same time amounted to £3,988; making a total of £7,166 in five years. The amounts of expenses were: For 1870, £1,169; 1871, £1,280; 1872, £1,400; 1873, £1,581; 1874, £1,736; showing an increase in these two items of expenditure in four years of 50 per cent. Why is all this? Because the citizens of Derry, while they have made feeble efforts at times to obtain some redress, have no sooner put their hands to the work than they have drawn them back again. There have thus been encouragements to extravagance and waste by the connivance and lethargy of the citizens of Derry. I have taken these figures from the society's documents carefully. I will hand them to the reporters, so that all, including the Irish Society, may see them. I will now show you what their net income has been, after deducting permanent payments, quit rents, and charges; what they disbursed in benevolent objects; what they gave for public purposes; what were the expenses of management, and the rate per cent. of expenses on net income."

Year.	Net income, after deducting Permanent Payments, & Charges	Disbursed in benevolent objects	Dividends for public purposes.	Expenses of management.	Rate per cent. of Expenses on net Income.
1870	£12,720	£3,460	8,059	3,967	31
1871	13,200	8,218	4,592	3,945	30
1872	13,150	3,614	4,880	4,296	32½
1873	11,130	3,640	3,410	4,975	45
1874	10,800	3,650	2,600	5,280	49
	£61,000			£22,463	

We can well echo the words of the speaker—"Was there ever such a condition of affairs in managing a trust estate disclosed of late years in the United Kingdom?" These figures with others given further back should be kept permanently before the eyes of the public until a reform is obtained. Twenty-two thousand pounds expended in management in five years is something monstrous. If rightly expended, what benefits might it not have conferred? What good might not have been accomplished for Derry and Coleraine? If twenty years' economy of the funds of the "Irish Society" could have accomplished much improvement, what would not an economy and rightful expenditure have done since the era of the reform of the Irish Corporation?

The "Irish Society" has taken little or no lesson from the past, and, in the matter of wasteful expenditure, has gone from bad to worse, and little or no honest attempt has been made to reform the system of leasing adopted by the society, and no reform can now be effected until the recommendation of the commission of 1854 is carried out, or one similar to it.

The besom of reform has left the Corporation of London untouched for upwards of thirty years, after nearly all the other corporate bodies in the kingdom have undergone change. Why this immunity? The City Companies of London—the direct feeders of the Corporation—remain nearly intact, with all their old abuses rife. Guilds of trade they have long ceased to be—indeed we might say for centuries. They hold large tracts, but the administration of the funds, as a whole, would not bear the light. During the last few years perhaps a half dozen of these City Companies or City Guilds have voted a few

prizes in a make-believe effort at encouraging technical education. Their dinners, and the speeches of their masters and officers, are their most remarkable performances. Though often warned like the "Irish Society," they have not reformed themselves, but their inevitable reform at the hands of Parliament is not far distant.

The close connection of the "Irish Society," as a body, with the City Companies, and also with the Corporation, will partly explain why reform has been so slow. The Corporation of London exercises a vast influence for good or evil as circumstances favour; but, no matter what may be its influence, it will be unable to stave off much longer the dissolution of the "Irish Society," the reform of the City Companies, and its own reform.

#### THE SANITARY STATE OF ISLAND BRIDGE BARRACKS.

THE following correspondence was read at a special meeting of the Corporation, held since the date of our last issue. Its reading led to a long discussion, some members throwing the blame of the delay on the Corporation. Mr. Norwood, on the part of the Waterworks Committee, said that the pipes were ready to be laid down. Mr. Dennehy said that if they had laid down pipes specially for the Vartry supply to the barracks, what had the canal water to do with the matter? Mr. Tickell held that the military authorities only wanted the Vartry water for drinking purposes, and the Waterworks Committee wanted to put pressure upon the military authorities to take the Vartry supply for all purposes. Mr. Norwood denied that this was the case. In the multiplicity of councillors there ought to be wisdom, but it is difficult to find it at Cork Hill. It appeared from the statement of Mr. Norwood that the supply of Vartry water would be given to the barracks at 4d. per 1,000 gallons, but that it was absolutely necessary the canal water should be cut off before the Vartry supply was allowed to enter the pipes. One set of pipes, of course, could not be used for the double supply, and if the Vartry water is only required for drinking purposes, and the canal for general use, new arrangements are indispensable. We are of opinion that the drainage at Island Bridge barracks is not the most perfect. We have good knowledge of what it was some years since, and we do not remember that any great improvements have been made since then:—

Dublin Castle, 3rd Dec., 1875

SIR,—I am directed by the Lord Lieutenant to transmit to you, to be laid before the Municipal Council of the City of Dublin, the accompanying copy of a letter which has been received from the General Officer Commanding the Forces in Ireland relative to the supply of Vartry water to Island Bridge Barracks, and I am to request that you will favour me, for his Grace's information, with an early reply on the subject. T. H. BURKE.

Quartermaster-General's Office,  
30th November, 1875.

Memorandum by the Deputy Quartermaster-General for the information and guidance of the Assistant Military Secretary:—

A board was assembled in May, 1874, to report on the sanitary state of Island Bridge Barracks, numerous cases of enteric fever having occurred among the troops there stationed. The proceedings of this board were forwarded to the Irish Government at the time. The board recommended, among other arrangements, that Vartry water should be introduced into the barracks for drinking and cooking purposes. This was approved by her Majesty's Government, and ordered to be carried out at once. The Royal Engineer Department report that they have completed their work, and that all the arrangements for the supply of the water for the use of the troops occupying Island Bridge Barracks are complete, but that there is some delay in the supply of the water on the part of the Corporation of Dublin. The Commander of the Forces desires that the Government of Ireland may be addressed as soon as possible on this subject, and urged to move the Corporation of Dublin to immediate action. This is the more necessary as there have been recently two further cases of enteric fever among the officers of the regiment occupying the Island Bridge Barracks.—W. HOPK CRAWLOCK, C.B.



### THE POSITION OF MODERN ART, AND ITS GENERAL PHILOSOPHY.\*

It was our intention, when we read the following address, to traverse at length some of the speaker's views. As a composition, it evidences thought, and it is worthy of reproduction and perusal. For the present we leave the task to others to canvass some of Mr. Patton's views. In giving an abstract of his address, let us say we do so with feelings of pleasure, though we may not necessarily subscribe to all it contains. Anything that can tend to the elevation of art in this country, whether within the walls of our University or without them, has our heartfelt sympathy. If Trinity College moves aright in the way indicated, its influence cannot be otherwise than productive of good to the future of art in this country:—

I have chosen, as a subject for a very humble essay, to make some observations on the position of modern art, and its general philosophy. In doing so I shall be well contented if, without entering the fields of metaphysical research—in which I have no desire to lose myself or to perplex my hearers—I can offer a few thoughts which may in any degree throw light on a matter of such commanding interest. I do not hope at all to overtake, much less to exhaust the entire subject, but only to contribute as far as I am able to the elucidation of one or two points that lie, as it were, along the field of thought that is thus opened out for our consideration. I only wish to show how wonderful in all ages has been the influence of art upon our world, how marvellous is its immediate bearing on contemporaneous history, how marked its development even in modern times, how important its study as an element in all true culture. Such considerations appear to me hardly out of place within the walls of any establishment which exists for the purpose of affording mental training.

When we think how, year after year, our universities are becoming more truly universal—Trinity College, Dublin, not less than the rest,—and extending their courses and systems, it is obvious that the claims of art as an educational medium cannot be long ignored. For indeed the great question of what we aim at in the cultivation of art, and what relation this latter bears to all true education, can hardly be said to be unimportant, when we reflect how sharply it touches on another great question which comes home to every one of us, and which we are all forced to contemplate steadily. That second question is none other than this—What is the end of our university life, and the relations which it bears to the ends of all actual life? If our universities have any real mission, it is surely that of distributing mental improvement—not alone that improvement which suffices to make a man a good clergyman, or a good barrister, or a good doctor, but something far above and superior to all these—a mental improvement which will display its influence, and result in all the faculties of the man himself. This it ought to be the object of every true and enlightened system of education to accomplish, and the question must stare us in the face—Has it always hitherto been done? It is easy to cavil in phrases borrowed from a certain utilitarian logic at such an estimate of true university working, which has in it something far superior to the purpose of fitting men for the pursuit of this profession or of that craft. Its higher aim, as I take it, is to draw forth that which is best in the man himself; and, while fitting him for some special calling, not to stop here, but to supply some real mental culture and enlargement beyond and independent of mere technical and professional learning. Nothing is more usual in these recent times among our latter-day prophets than the utterance of wild

lamentation over the decay of all the principles of art. We are perpetually reminded by some loud voice of warning that our civilisation is destructive of all true æsthetic feeling, and that amid all its progress and much vaunted splendour we fail, through increasing sensuousness or materialism, to grasp those nobler ideas and more graceful forms which were the chief glory of days long since gone by. How often, for example, do we hear the cry that we live in an inartistic age, and among an inartistic people? How far this is true, and in what manner it may be best accounted for, I purpose now investigating.

But not only is it true that all art demands a special education and culture, and that in reference to sculpture and painting, at least, our educated classes are singularly wanting in artistic knowledge, but it is also a fact that the classes who themselves pursue art are, as a rule, equally wanting in general culture. The universities, speaking broadly, and not forgetting the Slade Professor, do not teach art; the art schools do not teach anything else. As a natural result, many of our best painters, sculptors, and indeed musicians, are without mental culture, just as their patrons are without art acquirements. How ignorant and unprofitable for the most part is our criticism of the products of art. The very best of it generally deals with them in their intellectual aspect only, with a slight admixture of technical jargon, but no intelligent reference to the great facts of nature. One chief cause of this is the melancholy fact that, while artists are the best critics of works of art, their education frequently makes them the worst writers on the same. These most capable judges do not give us criticism; for persons to whom the mere act of penmanship is arduous, are not likely to spend more time upon it than they are actually compelled to spend. Accordingly, in painting, the true art of colouring is almost lost to us, and while we have a hundred volumes of empty verbiage, by so-called connoisseurs, concerning an art of which they know little or nothing, we have scarcely a line of record from any truly great artist, giving us an intelligible account of his technical methods of observation. I do not deny that of recent years much improvement has been made, and notably in the youngest sister of the arts—music, where Mendelssohn, Schumann, and Wagner have successfully preached by precept and example the necessity of an expanded culture, but the urgent necessity for art education combined with general knowledge is everywhere apparent. But anent the general art-ignorance let us view the matter from a different standpoint. Nothing renders it more clearly evident than the various criticisms that crowd our reading-rooms. If the body of the nation were really educated in art, works on its products would be scarcely a necessity; pictures, statues, and symphonies would assuredly speak more clearly for themselves. The experience of centuries proves that they only speak to persons already far advanced in art culture, just as books can only reach people who have learned to read.

It will be judged from the foregoing observations—and judged correctly—that I am unwilling to admit the degeneracy of the day, and that I prefer to attribute the appearance of such an evil either to an unusual concurrence of obstacles, forced on us by the conditions of modern life, to a deficiency of suitable education, or to the fact that the emotions of the busy age are seeking some other and more adequate methods of expression. Now the interest and peculiar dignity of true art, and especially of all art which would attempt to represent the nineteenth century, consists in this—that she is at all times in a stage of complete correspondence to the age in which her productions are manifested, and that by these productions we can easily discover and note whether students have kept in their view a correct perception of the ideal and of representative character of their subject or not. If this statement of her place be not true, art has no real province at all, and it is equally clear that all that is

best in modern work must in every way tend to the union of the three great elements we have already mentioned, since a brief examination which we shall presently make of the tendencies of the age, show that it has no more evident characteristic than an earnest desire for such an unity in those fields which lie outside the domain of art. The first mighty change wrought in the temper of art was that of Christianity, which I can assuredly notice as a philosophic force. It reversed all previous sentiment, for it deepened the channels of natural feeling, and unfolded capacities of emotion destined to strive through many years of unrest before they found a suitable form of living expression. Egyptian and Greek art would no longer suffice, nor have they ever since been able to meet the need. It is, of course, a truth that this effect of religion upon art is not apparent until the close of some centuries after the granting of the new revelation, but the answer to any objection on this score is to meet the difficulty with the other truth, that repose was lacking. Intense activity, and the consequent absence to a certain degree of imaginative culture, was a necessity to the first existence of Christianity, and unrest was fatal to art. But as soon as the genius of the faith became meditative, subjective, and introspective, the urgent need for art expression was felt, and remedies were found. First came the uprising of mediæval architecture, next of Italian painting, and lastly the development of modern poetry, and of music, and of the drama.

We now come to the consideration of the second question which I have ventured to announce: In what artistic form, if any, are the manifold qualities of our busy modern life best exemplified and expressed? Where does the violent self-consciousness and tendency to analysis of the present day find its most suitable medium for utterance? It is perfectly evident that our age is not artistic—nay, is even painfully inartistic—if its power and emotion find an adequate and satisfactory mode of expression in the achievements of modern sculpture. Again, it seems an irresistible conclusion that our age is equally unsatisfactory, if we glance at its achievements in painting, which cannot be regarded as a true exponent of its characteristics. For painting—and what is said of it under this head may be even said more truly of sculpture—cannot depict the entire kingdom of modern sentiment and thought. Accordingly, we find ourselves driven into the adoption of one or other of two hypotheses—either that, as an age, we are destitute of all artistic vitality; or that this latter expends itself in other quarters, and under foreign influence. I believe the correct solution will be found in the fact that our age is not less artistic than preceding epochs, but that our sentiments and imaginative energies find their expression in other fields of cultivation which are more kindred to the sympathies of the age. This fact will, indeed, adequately elucidate the apparently retrogressive position of all post renaissance art. At no previous period of the world's history has so large a percentage of the art ability of the age deserted the domain of the mere arts of design, and, in order to express its thoughts more fully, adopted that which belongs to the more modern forms of the drama, of romantic literature, and of music; and there can be little doubt that the great absorption by these latter branches of imaginative reason of this art-ability is one marked reason amongst others, that we should fail to produce a great school of either architecture or painting. The present instinct, as it were, of the vast majority of those who, from high in-born æsthetic tendencies, consecrate their energies to the more spiritual cultivation which the fine arts afford, appears of late to have been to throw itself more or less into the channel of music.

The land—I do not say of political development, or of social development—but of art development, is Germany. There, within the last three hundred years, music has been adopted as the national art, just as Italy

\* From an inaugural address of the President (Mr. Arthur Patton) at the opening meeting of the session of the University Philosophical Society.

once embraced painting. Music alone of the arts satisfies the analytic tendencies of the age, for alone of the arts it is invested by a connexion between it and numbers, with a consequent dignity, which adds to the superstructure of a delicate flower the roots of the forest oak. In it instinct and science co-operate as was never known before, for in music science proves what the ear detects, and the ear ratifies what science asserts. But utilitarianism is the order of the day; *in pretio pretium*. What is it to fetch in the market? If art in any development is to make its way in these countries, there is only one way for it—spread a knowledge of what is good in it among statesmen and legislators and the wealthy portion of the community, and the rest will instantly follow; and the more certainly, the less it is avowedly aimed at. Whatever art-teaching these islands possess (and I mean by art-teaching not technical or purely intellectual art-teaching), is in the gross so bad that we have almost none at all. The universities at present bid men learn history, but not the histories of Greece alone, but of the middle ages; this is, in a great degree, the history of the civilisation of the Greek and middle ages; and of this the history of art is at least one good half; but it is the neglected half. Who in a university ever learns anything of Michael Angelo, or is ever taught that he was infinitely the greatest man of his time, far greater than the men he worked for, great enough to lead and influence the able men of our day? We have every opportunity to learn of Machiavelli, and none to learn of his superiors. In all this I am making no complaint. It is no one's fault that it is so, and the laws of development will work a speedy remedy. But a thoroughness of art-education is indeed sorely needed, and is, moreover, entirely distinct from a purely literary culture, for the truth cannot be too often set down in words that large ideas may be conveyed as vividly and rightly by symbols of form, colour, and sound, as by words and sentences. How cleverly these old masters knew how to touch the heart; and, after all, high aims and the dream of doing nobly, or doing one's best, are the great things of life: for every man has his day, and sooner or later he who dreams of great deeds will wake to their reality even here. This higher duty, this better self in man is what the study of the noblest thoughts of the noblest men brings home to every thinking student. The hope of the age is for art prizes and rewards, and for high instruction for the artists of the future in our universities. Something of the kind has long been meditated at Oxford, and there is little doubt that ere many years this one great step will take place in all our universities. Both Oxford and Cambridge have art professors at all events, and Dublin must follow some day. The skill of art and of literature will then combine without mutual infringement, or rather, since both are boundless and set at all things, they will seek the infinite without getting in each other's way. Ripe and perfect literary criticism first, the best matured thought of the best educated soul, best trained in feeling and reflection, and with it the spiritual import of true art.

#### THE ARCHITECTURAL ASSOCIATION OF IRELAND.

A MEETING of the above body was held on Thursday evening, 2nd inst., Mr. T. H. Longfield in the chair, when a paper was read by Mr. A. W. Robinson (hon. sec.), on "Foundations," which led to a long and spirited debate.

Mr. Fennell explained the various methods employed in the works carried out under the War Department, where the soil is untrustworthy to any depth. He also illustrated the method of building a brick foundation for a factory chimney.

Mr. W. G. Doolin explained the method adopted by him in the case of some public buildings at Waterford, the foundations of

which were on a foreshore, and where there was found buried an old quay wall.

The debate was also supported by Messrs. Allen, O'Neill, and Wilson.

Designs for an apex stone and cross were submitted by Messrs. Allen, O'Neill, Millar, Oldham, and Fennell.

#### BELFAST ARCHITECTURAL ASSOCIATION.

ON Monday evening, 6th inst., a general meeting of this association was held in the Museum, College-square, North, when a paper was read by Mr. Conway Scott, B.E., on "Notes from an Engineer's Field-book." Mr. Vere Foster occupied the chair. Before the commencement of the ordinary proceedings, Mr. R. M. Young, hon. sec., made the following announcement:—"The committee beg to inform the members that in addition to the other prizes announced at the last public meeting (8th November), Vere Foster, Esq., has most generously offered prizes amounting to £6 for the best design for a town schoolhouse; and Sir Charles Lanyon, who has always taken a deep interest in the well-being of the society, has expressed his intention of giving a prize of £2 2s. Design for a town schoolhouse, containing principal rooms respectively for infants, girls, and boys' schools, each principal room to have attached to it at least two classrooms, cloak and cap room, washroom, and other conveniences; each principal room to have a superficial area of at least 1,000 square feet, and each classroom at least 300 square feet. Scale, 8 ft. to 1 in. First prize, £3; second prize, £2; third prize, £1; the third prize to be reserved for competition by pupils only, and the designs to remain the property of the designers, merit to be assigned by the examiners to design and execution in equal degree."

The chairman having introduced Mr. Scott, that gentleman proceeded with his lecture, the first part of which dealt with personal experiences in the survey and formation of great American railways, the camp life and scenery of the country, its topography, races, and mineralogy; and in the second part he referred to Canada, the Grand Trunk Railway through the British possessions, the question of emigration, and other subjects of an interesting nature.

The paper was spoken to by Mr. Lockwood, Mr. R. M. Young, Mr. W. R. Jackson, and Mr. Watts; and on the motion of Mr. Jackson, seconded by Mr. Watts, a cordial vote of thanks was passed to Mr. Scott.

The chairman, in conveying the vote, said he had not been so far west in the United States as Mr. Scott, but he had travelled through most of the Atlantic States, and as far west as Minnesota, and a more hospitable, kindly people he had never met. Turkey, Sicily, Greece, and other old countries in which he had also travelled, are decaying; but there is a great future before America.

Some routine business having been transacted, the proceedings concluded.

#### THE CORK DISTRICT LUNATIC ASYLUM BOARD AND THEIR LATE ARCHITECT.

WE annex below a letter read at the last meeting of the board of governors of the above institution. It tells its own tale very simply and clearly. We had hoped, when we last adverted to this unhappy dispute, that the asylum board, for its own credit' sake, would have taken the good advice given by one of its own body, and settle at once the modest claims of Mr. Atkins. There is no good to be obtained by protracting the dispute longer and annoying the architect, but much harm will be the result. If the case should go into the law courts, we are much astray, indeed, in our opinion, if Mr. Atkins' claims are not fully sustained, and the board mulcted in costs. All this trouble and expense can be avoided by giving to Cæsar what belongs to Cæsar. We have given the

subject some thought, and we are clearly of opinion that Mr. Atkins has been very unfairly treated. Even in the payment of his fair demands simple justice would not be accorded to him, for he has already been injured by this protracted dispute, which, to say the least, is not creditable to a body of Irish gentlemen dealing with an architect and a gentleman:—

39 South Mall, Cork, December 1st, 1875.

GENTLEMEN,—I am in receipt of your communication of the 24th ult., enclosing report on my account. With regard to the statement in it that I had implied that the House Committee had arrogated to themselves the functions of the board, I am not aware how I have done so, and certainly I never intended to convey any idea of the kind. I beg again most distinctly to deny that I ever asked for money not legally and rightly due to me, and I cannot but feel indignant at such statements as have been made in the report. During the last five years I have received two sums—one of £84 in September, 1874, for miscellaneous works, and the other £259 1s. 9d., on account of the new infirmary, including the balance of £36 15s. 3d. due to me on the portion built. A reference to the following figures will, I think, make the matter quite plain, and show without any doubt that a sum of £60 3s. 8d. is still due to me out of the infirmary extension:—

Balance due on portion of the infirmary	£36 15 3
Commission on infirmary, £5,061 at 5 per cent.	£253 0 0
Commission on omitted works, £1,187 at 2½ per cent.	29 10 2
	<hr/> 282 10 2
Received on account	£319 5 5
	<hr/> 259 1 9
Balance	<hr/> £60 3 8

The balance on the account I have received is verified in a letter received by me from the secretary of the Commissioners of Control, a copy of which I herewith enclose. With reference to the statement that the board did not employ me to superintend the proposed new works, I beg to say that no idea was ever conveyed to me that a different arrangement was to be made from that always existing between the board and myself. On the contrary, at the December board of 1874 it was proposed by a member of the board that I and Mr. Edwards should conjointly superintend the works, and on an objection being raised to paying a double commission of 10 per cent., it was agreed that I should do so alone. It was also proposed that I should take out the quantities without extra fees. Surely it was never intended that 2½ per cent. for plans only should also cover the cost of quantities, for which alone measurers charge 1½ per cent. At the same board it was also decided that the house committee should be associated with me in the arrangement of any disputes which might arise with the contractor during the progress of the works, thereby proving beyond any doubt that the board considered me the superintending architect. And, as an additional proof, I may mention that the sum of £70 11s. 6d. was deducted from my miscellaneous account on the sole grounds that I was engaged on the proposed new works, the amount of my commission, £600, being mentioned. Were it not for this, I would never have assented to the reduction of my account.—I am, gentlemen, your obedient servant,

WILLIAM ATKINS.

#### COLLEGE OF ST. COLUMBA, RATHFARNHAM.

##### NEW SCHOOL-ROOM.

THE new school-room, which was commenced in last February, has been opened. It is built of granite rubble, obtained from quarries in the neighbourhood. It is 90 ft. in length by 30 ft. in width, and 26 ft. in height. The walls inside are lined with red, blue, and white brick. The new building forms a fourth side to the quadrangle. The builder was Mr. William Harpur, of Blackrock, the plans being by Messrs. M'Curdy and Mitchell. The furniture, desks, &c., were supplied by Messrs. Sullivan Brothers, Marlborough-street, and the gas-fittings by Messrs. Edmundson and Co., of Capel-street. The cost of the structure was £1,400, but, with fittings, it will reach £400 more. The building of a new chapel is in contemplation, for which Mr. Butterfield is preparing the design.

### HOW THE CITY IS IMPROVED— "FINANCIAL SHUFFLING."

THE "City Fathers," or one or more of the three committees, are a blessed fraternity of financiers. When the question of the sewerage of the city came up before the council a few days ago, it appeared that the estimate required for "sewers" next year was £8,500—£3,500 for the north side, and £5,000 for the south. In the books there appeared £7,034 to the credit of the Sewer Fund, but there was not a sixpence really and honestly available for the purpose. No information could be obtained from No. 1 Committee how the money had been expended, or what sewers it was intended to construct in the coming year. No. 8 Committee had passed a resolution to the effect that, as there was an aggregate amount of £7,034 to the credit of the Sewer Fund, according to the Treasurer's Return, they recommended the council to sanction the levying of the difference—£1,500 only—between the sum to the credit, and the sum required for the ensuing year. A member of No. 1 Committee said that at the end of 1874 that committee was in debt to the extent of £15,000, and that sum "had been reduced by a sort of financial shuffling," that is by the transfer of a large sum from the Sewer Account to the Improvement Fund. It appears by the statement of another member that a lawyer's opinion had been sought as to the legality of this transferring of money from one fund to another. At present the amount stated to be to the credit of the Sewer Fund was not £7,000, but £2,800, and we are told quite seriously that £2,500 was expended last year on the Poddle. It would be nearer the mark to say it was expended in "puddle and muddle." Further, we are told that there was £4,200 worth of works put down for execution next year, and that the maintenance of the sewers for the year would cost £2,500. How an auditor could have passed the accounts of the Corporation, exhibiting such a state of matters as that disclosed above, really puzzles us to understand. The cat's head is out of the bag at last, and when she pulls her body through, as doubtless she will, the bag of gas will collapse, and the financial shufflers may expect to meet their long-deserved recognition at the hands of their fellow citizens. The municipal pack of cards has lasted a long time, but the marked cards are recognised at last by everyone, and no amount of shuffling will improve the municipal situation.

### THE HISTORY OF THE HAMMER.

THE history of the hammer might give rise to a species of drama as interesting as anything ever yet produced. In it would be found characters and customs of every age, variety, and nation, incident and adventure in the greatest profusion—the extremes of unrequited toil and patient, ingenious talent and its opposites, records of the humblest individuals who have, by their industry and ingenuity, risen from obscurity, and astonished the world. Mechanics have become kings like Agathocles, the potter of Sicily, Leitz, the tinker who founded the Caliph dynasty, and Aurelius, the blacksmith of Rome. Kings have been workmen in brass and silver, in wood and iron; Demetrius at his lathe, Æropus making lamps and tables, Charles V. in his watchmaker's shop, Peter the Great of Russia ship-building, the unfortunate Louis XIV. making locks and keys, and I believe that the present Duke of Cornwall, and Head Master Tinner and his brother have produced some very creditable specimens in cabinetmaking.

How rich in interest would be a dramatic scene laid in an antediluvian smith's forge, to study the character of the visitants, listen to their remarks, examine the articles fabricated by the artist—his materials, bench, bellows, and tools—tools made in an age when iron was more valuable than gold, and when as much care was taken in facing a

hammer with iron, the body of which was entirely of gold, as now would be taken under opposite circumstances, and which is shown in the specimens of tools discovered in the Siberian ice.

There is not a more interesting scene in all the Iliad than the description of Vulcan at work.

But should such a distance of time be too remote, there is the forge of Kawah, the blacksmith of Ispahan—he whose apron was for centuries the banner of the Persian Empire; the forge of Aurelius also, where he made the sword by which he was afterwards, while Emperor, slain; and the back apartment of the barber's cellar, where Arkwright improved cotton machinery.

In another scene we might have a representation of the impostures of the heathen priesthood—men who, in the distant times, applied some of the finest principles of science to the purposes of delusion. In it we could see their automaton figures and mechanical apparatus conceived and fabricated, and the experiments made before the miracles were consummated in public.

But it would be impossible to enumerate a tithe of the incidents and subjects for the drama that might be derived from the history of the hammer; they would be more numerous than articles of traffic and implements of trade.

If we could realise a complete history of the hammer, it would form a more complete history of the world than has ever been, or perhaps ever will be, written. It would embrace the origin and progress of all the useful arts, and would elucidate the civil and scientific acquirements of man in every age; it would open to our view the public and private economy of the ancients, introduce us into the interior of their workshops and temples; it would illustrate their manners, politics, religion, superstitions, &c.

In tracing the various purposes to which it was applied, we should become acquainted with all the material transactions in the lives of some ancient individuals from their birth to their death, and also to the circumstances which led to the rise and fall of empires.

Ancient hammers varied as now in size, from the huge sledge of the Cyclops to the portable one with which Vulcan chased the more delicate work on the shield of Achilles—from the maul by which masses of ore were separated from their beds in the mine to the diminutive ones which Myrmecides of Miletus, and Theodorus of Samos, used to fabricate carriages and horses of metal, which were so minute as to be covered by the wings of a fly. Its figure has always varied with its uses, and none but workers in the metals can realise the endless variety of its shapes, which the ancient smiths required to fabricate the wonderfully diverse articles of their manufacture, from the massive brazen altars and chariots, to the chased goblets and invaluable tripods or vases, for the possession of which whole cities contended.

Its history would let us into the secrets of the statuary of old; we should learn the process of making those metallic compounds, and working them into tools, with which the Egyptian mechanics sculptured those indurate columns that resist the best tempered steel of modern days. It would introduce us to the ancient chariot makers, cutlers, and armourers, and would teach us how to make and temper the blades of Damascus, as well as those which were forged in the extensive manufactories of the father of Demosthenes. It would make us familiar with the arts of the ancient carpenters, tinkers, coiners, coopers, and jewellers. We should learn from it the process of forging dies and striking money in the Temple of Juno Moneta, and also of the process by which the many exceedingly beautiful articles in gold, silver, bronze, &c., which we find in the Royal Irish Academy were made, many of which surpass in beauty of form and accuracy of finish the productions of the Birmingham stamping presses of the present day, and fully prove that the Irish people were highly refined and educated when the inhabitants of the now

more powerful kingdom were painted savages living in wigwams.

Finally, a perfect history of the hammer would not only have made us acquainted with the origin and progress of the useful arts, among the primeval inhabitants of this hemisphere at a distance of time—possibly of 20,000 years or more,—but might also have solved the great problem of their migration to the western world.

J. K.

### A PASTORAL STAFF.

By a small pamphlet\* just to hand we learn that a movement is on foot to procure for the Diocese of Down and Connor, a "symbol of episcopal rule," and which is styled the "Pastoral Staff." A few extracts from the brochure will enable our readers to form their opinions as to the ideas and aims of the parties concerned. "A vast amount of learning and research has been expended by writers on ecclesiastical subjects upon the origin and history of the pastoral staff, which, however interesting to the antiquary and archæologist, would be out of place in this brief notice." . . . . "The pastoral staff, like the mitre, was common to certain abbots, with the bishops of the early ages, but with a difference in form and material. In the pictorial records which remain from the same times, it is to be noted that the abbot bears his staff in the right hand, and the bishop in the left, the right hand of the latter being raised in the usual form accompanying the episcopal benediction."

The writer enters at length into a statement of what has been done in England in reviving the ancient usage under consideration. He informs us that the use of the pastoral staff by the bishops of the Irish Church, at a very early date, is a well-ascertained fact, and is noted by early church historians.

With another extract we must conclude:—"This staff is thus intended to be an heirloom for the diocese. It will be of the richest material and the best Irish workmanship which can be procured. An appropriate design has been furnished. This design is intended to be, in part at least, historical as well as emblematical. The 'patron saint' of Ireland is represented as standing on serpents' heads, having in one hand his pastoral staff, while in the other he raises the legendary triple-leaf, the chosen emblem of the doctrine of the ever-blessed Trinity preached by him at Tara, and of the defeat of Paganism then and there accomplished. It may be remarked that the ornamental detail is all of a purely Celtic type, and that the miniature staff in the hand of the principal figure is modelled in exact imitation of the ancient Irish examples above referred to. . . . It is believed that this specimen of modern Irish ecclesiastical art will not only serve to foster among our fellow-countrymen a love and zeal for that skill in those branches of workmanship for which our forefathers were so justly celebrated, but that it will also form a precedent to other Irish dioceses for a similar effort towards supporting the status and dignity of the Irish episcopate throughout our land, once named 'the Isle of Saints.'"

### GAS NOTES.

**BELFAST.**—The Corporation have arranged to borrow £220,000 from the Bank of England, for the purpose of purchasing the Gas Works, such sum to be repaid in twenty years, with interest at 6 per cent. per annum.

**NEWTOWNARDS.**—At a monthly meeting of the Town Commissioners, the sanitary officer reported that on the 29th ult. the gas supplied was a nuisance, and that the smell in the apartments in which it was used was offensive. The usual order was made.

\* A Pastoral Staff for the United Dioceses of Down and Connor and Dromore. (For private circulation only). Printed by Marcus Ward and Co., Belfast.

† Under the supervision and from the suggestions of the Rev. W. MacIlwaine, D.D., who has made a name for himself as an antiquary.



CORRESPONDENCE.

"CHURCH BUILDING."

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—“Children and —, &c., should not judge unfinished work,” is the particularly graceful and elegant conclusion of a letter by Mr. William Gray in your issue of the 1st inst. Notwithstanding that I am evidently intended by the writer to come under either of the *genus* expressed or implied above, I shall again risk being the subject of Mr. Gray's trenchant pen. With your permission I shall place the facts of this trivial matter (about which your correspondent seems so much aggrieved) before your readers.

Let me state, in the first instance, that the report from which Mr. Gray quotes is slightly erroneous. What I did say was—“the central and two lateral piers, the door being a double one.”

The building to which reference was made is a plain red brick one, destitute of any architectural features except the present *casus belli*—a projecting stone porch in gable and a stone circular window over it. The church, which belongs to the Methodist body, was finished about four years ago, and in the occupation of the congregation. For about three years subsequently the “phenomenon” was to be seen, and during that period I had many opportunities of contemplating its strange effect; and, as I never saw any indication of its being removed, I, in common with others, naturally enough concluded that it was to remain so. Surely, I thought Mr. Gray would never have taken the work off the contractor's hands in an “unfinished state,” or allowed such a length of time to elapse before making good this mere “temporary blunder”!

Mr. Gray's letter is so worded as to rather convey the impression that the “blunder” was forthwith rectified—in fact, before the works, accounts, &c., were brought to a final termination, or contractor's plant removed from the ground, for he says with considerable naïveté that “the porch is now complete according to the architect's design.”

Mr. Gray evidently wishes it to be inferred that the “completion” of porch was depending and consequent on the “adjoining buildings,” and that these buildings formed part of one great scheme to be built (perhaps in sections) under one contract. “They” consist of an ordinary two-storey double cottage of the orthodox style, viz., with the hall door in centre, a bay window right and left, and the usual complement of windows over, and are to be used, I believe, for the purposes of a manse. Further, “they” (the adjoining buildings) are completely detached from the church itself, and to a casual observer would seem to have no connection therewith.

This manse was only built this last season, when, I believe, the “completion” of porch took place; and, having seen it a few weeks since, I can vouch that it has been altered, and, since Mr. Gray says so, I am sure in accordance with the “architect's design,” and he is therefore perfectly within the truth when he says it (the phenomenon) “does not really exist.”

The transformation has been effected by bringing the arch stones forward on to the caps, and setting in behind them, to fill up the vacuum, new stones, which by reason of their light colour afford an agreeable (?) contrast to the dull grey of the old stonework.

I must confess I was rather astonished that Mr. Gray should have written to you on the subject. No personal reference was made to himself, nor was even the *locale* of the building mentioned; and I venture to say, with one exception, not one of the audience (so far as I can learn) knew to whose work reference was made.

The other gentlemen referred to in my paper, some of whose works are of real importance (and to whom I made stronger allusions than to Mr. Gray), understanding and recognising the spirit in which my remarks were made, have taken my criticisms in good part, well knowing that the only

possible object I could have was to elicit expressions of opinion from those present on the matter of my paper, and thereby have an interchange of ideas—one of the great objects for which our Association was formed; and I submit, owing to the circumstances of not knowing the “architect's design,” coupled with the fact of the “temporary blunder” being *in statu quo* for such a long time, rendered the subject of this correspondence fairly one for comment.

I shall probably at no distant date reproduce a sketch of the “phenomenon,” made last year, for the benefit of your readers.

TIMOTHY HEVEY.

4 Alfred-street, Belfast.

ARCHITECTURAL TEACHING.

MR. THOMAS NEWENHAM DEANE, R.H.A., who is otherwise well known in connection with the architectural profession, writes in reference to some observations made by the President of the Irish Architectural Association in his recent address. He agrees with Mr. Drew that facilities for the instruction in architectural drawing are not as good as they are in England, and says that not only architectural drawing but other arts in this country are at a low ebb. He goes on to say:—

“We have much of the raw material, but we cannot develop it satisfactorily. Most people imagine that architectural drawing consists of a few crude copies of the four orders, a neatly inked ground plan, and an elevation of a Gothic church. When the student has accomplished these feats he thinks himself fit to occupy the position of assistant to any of the various Vitruvians who practise in Dublin or elsewhere. After a time he finds his deficiency, and generally throws up what he calls his profession. The education of a young architect now-a-days ought to be of a very different type. He must see what is good, and learn to draw it; he must study what has been done by others who have gone before him; he must, as it were, dissect ancient art, and when he has done so, draw it honestly and faithfully. The figure must be his study, and he must read so as to become a man of letters. Some young men draw smartly and picturesquely. This is a great snare. They shirk detail; and cover their shortcomings with pretty pencil scratches and unmeaning touches. You will probably say, to what is this leading? It leads to what I have before urged as a great want in Dublin—the establishment of a good technical School of Art, where the smith, the carpenter, the carver, the weaver, the builder, the decorator, and the architectural student may see the best examples of such objects as may help him to form right conclusions as to what is right and wrong, beautiful and ugly. My experience of architectural teaching has taught me the want of such a school, and what an up-hill business it is to impart instruction to a pupil in your office without such help. Dublin ought to have such an institution, and I have no doubt could have it if we confine our aspirations within moderate limits. If we do so we are more likely of success. Look at our ancient buildings. A few have been selected as national monuments. Numbers are vanishing off the face of the land through want of a little care. This should not be so. There is no country where architecture has so completely been the reflex of history, and where it is more truly written in its stones. If we have not the energy to prevent our old buildings from falling to decay, let us at least have casts made of some of their beautiful detail. These will form a portion of the collection which would find a home in the museum, and will educate the eye of the youthful student, and help to supply the deficiency referred to by Mr. Drew.”

Some of Mr. Deane's as well as Mr. Drew's statements might be traversed, but we shall let the matter rest where it is for the present. The fault, however, we will add, does not lie altogether in the direction indicated, and our native architects themselves have a good deal to answer for, if they will only view the matter aright.

HOME AND FOREIGN NOTES.

CORK DISTRICT LUNATIC ASYLUM.—Mr. Edwards, C.E., submitted plans for the construction of waterworks in connection with the institution, and raising the boundary wall. The cost of the former work would be £670, and the latter £500.

DEATH'S DOINGS.—The deaths registered in the Dublin Registration District during the week ending 11th inst., represent an annual mortality of 33 in every 1,000 of the population, by the census of 1871. In London the death-rate was 28 in every 1,000 of the estimated population, in Glasgow 31, and in Edinburgh 22.

MEMORIAL WINDOW.—A stained glass window, by Ward and Hughes, has been erected in Castlecaulfield Church, County Tyrone, at the cost of Mr. Robert Evans, of Dungannon, in memory of Eleanor his wife. The window consists of three lights, on the centre of which is represented the Offering of Isaac. The side lights represent the parable of the Good Samaritan and the Raising of Jairus's Daughter.

THE DRAINAGE OF DUBLIN.—The *Army and Navy Gazette* asks—“Can anything be wrong with the drainage of Dublin? for we hear of more deaths and more sickness among the officers quartered in that city than in any other station in the United Kingdom.” [Who'll answer this important question?—ED. I. B.]

“THE GARDEN.”—During the year now nearly at its close, the proprietor of “The Garden” gave occasionally with his excellent journal some colored plates of flowers and shrubs. He announces that with the beginning of the new year he will make this a prominent and permanent feature in *The Garden*. This is indeed “an important innovation in weekly journalism,” and will require a large expenditure of capital to keep up. *The Garden* and its bouquets can be profitably looked over once a week, and much benefit derived from the expenditure of a little time.

TO CORRESPONDENTS.

THE PASSING YEAR.—With our present issue the seventeenth yearly volume of the *IRISH BUILDER* is completed. What we aimed at doing, and with the public confidence succeeded in achieving for professional interests and the common weal, will be told anon. As this is the last time before the New Year we shall have an opportunity of addressing our readers, we kindly wish them all “The Compliments of the Season.”

“UNKNOWN DUBLIN.”—In this issue, in our sketch under the above heading will be found much interesting matter connected with the modern city—literary, social, and commercial. The compiler is neither a Harris, Walsh, nor Whitelaw, nor does he essay the functions of a second Gilbert. Dublin has had perhaps too many historians of one complexion; but, somewhat in the direction that the last one trod, the compiler of the sketches in this journal considered that there were many veins in the life and manners of this city left unworked, so he has essayed the task from time to time of snatching back some golden memories worthy of record which were fastly sinking out of sight.

“To dumb forgetfulness a prey.” When the “Oldest Inhabitant” shall have long passed away perhaps his recollections and those of his associates will be found here and there useful lights in illustration of the trade and other annals of this city in various fields.

A PUPIL OF THE DUBLIN ART SCHOOLS.—Quite right; stay where you are. Self exertion and a steady determination will accomplish all you desire.

INQUIRERS.—Copies of Mr. F. G. M. Stoney's pamphlet on “Sluices” can only, we understand, be had from the author. Enclose 3s. 8d. in a stamp to him, to Scatow-place, Dundalk, and you will receive a copy through post.

W. M. (Derry).—Drawing received.

A Citizen.—An Architect's Assistant.—O'B.—R. A.—Sanitäts.

A Carpenter.—M. D.—M. C., &c., &c.

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NOTICE.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress. No charge is made for insertion.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

Correspondents should send their names and addresses, not necessarily for publication.

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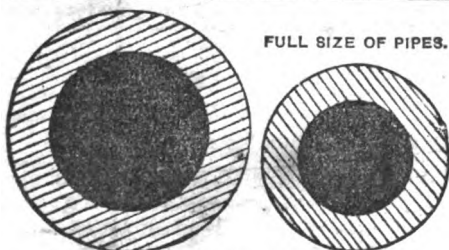
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